

ACOUSTICS 2024

50TH ANNIVERSARY CONFERENCE AND EXHIBITION

12 & 13 September 2024

Business School, Manchester Metropolitan University



Wednesday 11 September 2024

EARLY CAREERS SOCIAL – Sponsored by Getzner and UKAN+

Join us on Wednesday 11 September 2024 at 6.30pm for an ECG Social ahead of the Acoustics 2024 conference

This event is open to Early Careers Group and Buddies only. Space is limited to 30, so early registration is essential.

Nell's New York Pizza & Bar

20 Minshall Street, Kampus, Manchester M1 3EF

NORTH-WEST BRANCH SOCIAL – Sponsored by Farrat

You are invited to join North-West Branch for a drink from 6.30pm onwards, everyone welcome.

Brickhouse Social

11-13 New Wakefield St, Manchester M1 5NP

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Sound Reductions Systems

SoundCam UK

THURSDAY 12 SEPTEMBER 2024

ROOM 1

08:30 Registration and refreshments

09:00 Welcome, Alistair Somerville, President, Institute of Acoustics

ROOM 1

ENVIRONMENTAL SOUND

Chair: Steve Mitchell

09:30 Application of the Sottek Hearing Model for environmental noise assessment

Roland Sottek, Chalmers University of Technology, Germany

10:00 The Quiet Project- A national noise survey undertaken during lockdown

*Stephen Dance, London South Bank University; L McIntyre, KSG Acoustics; R. Vazquez Amos
London South Bank University*

10:30 The future of soundscape assessment – What can we learn from qualitative disciplines?

Taylor Cooper, Mott MacDonald

11:00 Refreshments

11:30 Rayleigh Medal 2024

Sound transmission predictions through walls using SEA and measurements using sound intensity

Malcolm Crocker

12:30 Environmental Sound AGM

12:30 Lunch

13:30 Producing new and updated guidance for the noise assessment of renewable energy source

Richard Perkins, Mott MacDonald

14:00 Evaluating human response to air source heat pump noise for sustainable domestic heating

*Volkan Acun, Lucy Barton, Trevor Cox, Simone Graetzer, Jonathan Hargreaves, Max Radivan,
Antonio J Torija Martinez, David Waddington Daniel Wong-Mcswweeney, University of Salford*

14:30 Aligning residential acoustic design guidance with the health evidence: a new proposal for the UK

*Benjamin Fenech, Noise and Public Health, Radiation Chemical and Environmental Hazards, Science Group, UK
Health Security Agency (UKHSA), Jack Harvie-Clark, Apex Acoustics,*

15:00 Refreshments

15:30 Research project for National Highways into a new calculation standard for transport noise

Matthew Muirhead, Aecom

16:00 Low frequency sound at outdoor concerts – A necessary noise

Dani Fiumicelli, Vincent Parker, Ed Lawrence, Jonty Stewart, Vanguardia

16:30 Provoking proportionate considerations of anthropogenic noise on terrestrial animals

Adam Scott, Andrew Bullmore, Hoare Lea

17:00 Close

17:00	UKAN+ Drinks Reception
17:30	Institute of Acoustics AGM
	Conference Dinner : The Monastery Manchester
18:30	Coaches depart from University
19:00	Drinks Reception (Sponsored by Farrat)
20:00	Dinner

ROOM 2

NOISE AND VIBRATION ENGINEERING

Chair:

09:30	<p>Estimation of partially-filled pipe flow parameters through use of turbulence-induced wall vibration data: An FBG-based approach</p> <p><i>Jah Shamas, Anton Krynkina, Gavin Sailor, Simon Tait, University of Sheffield, Yan Liu, Southern University of Science and Technology, China, Kirill Horoshenkov, University of Sheffield</i></p>
10:00	<p>Comparison of differing amplitude modulation methodologies using test cases and measurements</p> <p><i>Krispian Lowe, RWE</i></p>
10:30	<p>Harnessing generative AI: leveraging OpenAI's to enhance acoustic field note-taking</p> <p><i>Shenzhi Su, iFieldnotes</i></p>
11:00	Refreshments
11:30	<p>Rayleigh Medal 2024</p> <p>Sound transmission predictions through walls using SEA and measurements using sound intensity</p> <p><i>Malcolm Crocker</i></p>
12:30	Noise and Vibration Engineering AGM
12:30	Lunch
13:30	<p>Discussing the potential for Soundscape assessment complementing noise impact assessments for Environmental Permitting in Wales</p> <p><i>Matthew Bevington, Natural Resources Wales</i></p>
14:00	<p>Soundscape Mapping for Large-scale Urban Green Spaces: A Case Study of the Chengdu Outer Ring Ecological Zone</p> <p><i>Yiyi Hao, Bureau Veritas</i></p>
14:30	<p>Bang, Bang, Beep - non-operational airborne sound associated with offshore wind farms</p> <p><i>Ashley Leiper, SSE renewables</i></p>
15:00	Refreshments
15:30	<p>Acoustic Implications of Low Carbon Housing</p> <p><i>Rebecca Hogg, BSRIA</i></p>
16:00	<p>Sound transmission loss in duct with multiple resonators arranged in different patterns</p> <p><i>Takumasa Tsuruha, Takenaka R&D Institute, Japan</i></p>
16:30	Close

THURSDAY 12 SEPTEMBER 2024

ROOM 3**SPEECH & HEARING**

Chair: Christian Sumner

- 09:30** **Auditory perception of the subtle and transient attributes of natural soundscapes by human listeners**
Christian Lorenzi, PSL University, France.
- 10:00** **Personalising the perception of spatial audio over headphones**
Katarina C Poole, Rapolas Daugintis, Julie Meyer, Aidan Hogg, Nils Marggraf-Turley and Lorenzo Picinali, Dyson Research Centre, Imperial College London.
- 10:30** **Perception of loudness for brief sounds in background noise: Role of duration and signal-to-noise ratio**
Josef Schlittenlacher, University College London; Zara Belsham, Brian C. J. Moore, University of Cambridge.
- 11:00** **Refreshments**
- 11:30** **Rayleigh Medal 2024**
- 11:30** **Sound transmission predictions through walls using SEA and measurements using sound intensity**
Malcolm Crocker
- 12:30** **Speech & Hearing AGM**
- 12:30** **Lunch**

SPEECH & HEARING

Chair: Katie Gray

- 13:30** **One size does not fit all: implications of auditory perception in physical acoustics**
Michael A Stone, Rebecca E Millman, Manchester Centre for Audiology and Deafness, University of Manchester
- 14:00** **A sonic journey through acute brain injury hospital settings. Challenges and discoveries**
Laura Edwards, Fiona Marshall, Livvy Smith, David Baguley, Peter Rutherford. University of Nottingham
- 14:30** **The soundscape approach in engineering practice: Design metrics and a software analysis tool**
Andrew Mitchell, Bartlett School of Sustainable Construction, University College London; Francesco Aletta, Tin Oberman, Jian Kang, Institute for Environmental Design and Engineering, University College London
- 15:00** **Refreshments**

SPEECH & HEARING

Chair: Gordon Hunter

- 15:30** **Can we account for the benefit seeing a talker in real-world communication?**
Chris Sumner, Samuel Smith, Harvard University, USA, Jens Roeser, Thom Baguley, Paula Stacey, Nottingham Trent University,
- 16:00** **Acoustic analysis of the begging behaviour of Manx Shearwater (*Puffinus puffinus*) Chicks**
Barbara Francik, Joe Morford, Tim Guilford, University of Oxford
- 16:30** **Evaluation of fundamental frequency stability in speech and singing using bioimpedance measurements**
Eugion Donati, Julie Tomaszewska, University of West London, Christos Chousidis, University of Surrey,
- 17:00** **Close**

THURSDAY 12 SEPTEMBER 2024

ROOM 4**EARLY CAREERS & SENIOR MEMBERS**

Chair: Josie Nixon

- 09:30** **Mitigating blast noise: evaluating water curtains and expanded metals**
Zachary Simcox, George Mackenzie, University of Salford; Gethin Manuel, DNV Spadeadam Testing and Research; David Waddington, University of Salford
- 10:00** **Uncertainty within outdoor sound propagation calculations submitted to the Environment Agency for permit applications**
Rory Peliza, Richard Jovic, Environment Agency
- 10:30** **Next steps for noise and soundscape in Wales – What does implementation of The Environment (Air Quality and Soundscapes) (Wales) Act 2024 mean for the future of soundscapes?**
Philip Bowen, Jenna Turnbull, Martin McVay, Welsh Government
- 11:00** **Refreshments**
- 11:30** **Rayleigh Medal 2024**
Sound transmission predictions through walls using SEA and measurements using sound intensity
Malcolm Crocker
- 12:30** **Lunch**

EARLY CAREERS & SENIOR MEMBERS

Chair: Josie Nixon

- 13:30** **Initial results of the Health & Safety Executive's workplace noise enforcement programme 2023-24**
Chris Steel, Health and Safety Executive
- 14:00** **The Environment Agency & noise impact assessments for environmental permit applications. Where are we now?**
Paul Doyle, Matt Hill, Environment Agency
- 14:30** **Refreshments**
- 15:00** **Panel Discussion**
- 17:00** **Close**

UKAN+ at Acoustics 2024

ROOM 5

9:00	Registration
9:30	Welcome and introductions <i>(Kirill Horoshenkov, Richard Craster)</i>
9:40	History of UKAN and key achievements <i>(Kirill Horoshenkov, Richard Craster)</i>
10:00	EPSRC strategy and UKAN <i>(Andy Lawrence)</i>
	FUNDED PROJECTS
10:15	• The Rest is Just Noise Podcast <i>(Francesco Aletta, Andrew Mitchell)</i>
10:30	• Soundscape of protected natural areas <i>(Tin Oberman)</i>
10:45	• Biodegradable eco-acoustic sensing for scalable, far-reaching, and sustainable biodiversity monitoring <i>(Sarab S Sethi)</i>
11:00	Coffee break
11:30	Rayleigh Medal 2024 lecture <i>Malcolm Crocker</i>
12:30	Lunch and UKAN Poster session
	FUNDED PROJECTS
13:30	• Curved metasurfaces for healthcare uses – <i>Gianluca Memoli</i>
13:45	• Bioacoustic monitoring using drones – <i>Lin Wang</i>
	SPECIAL INTEREST GROUPS
14:00	• Mathematical SIG <i>(Anastasia Kisił)</i>
	• Physical Acoustics <i>(Olga Umnova)</i>
	• Noise and Soundscapes <i>(Abigail Bristow)</i>
	CHALLENGES IN ACOUSTICS
14:30	• Quiet Drones <i>(Antonio Torija Martinez)</i>
	• Mathematical challenges <i>(Raphael Assier)</i>
	SUSTAINABILITY IN ACOUSTICS (TBC)
14:50	• Sustainability in Acoustics <i>(Barry Jobling)</i>
15:00	Refreshments
15:30	UKAN and IOA <i>(David Waddington)</i>
15:40	Noise Network <i>(Mark Plumbley)</i>
15:50	Sound Futures – CDT <i>(Trevor Cox)</i>
16:00	DISCUSSION SESSION <i>(Facilitators: Kirill Horoshenkov, Richard Craster, David Waddington, Stephen Dance)</i> An interactive discussion session discussing some pre-set questions about: <ul style="list-style-type: none"> • The future of UKAN • Links with IOA • Role of SIGs
16:55	Closing remarks <i>(Kirill Horoshenkov, Richard Craster)</i>
17:00	Drinks reception

FRIDAY 13 SEPTEMBER 2024

08:30 Registration and refreshments

ROOM 1

BUILDING ACOUSTICS

Chair: James Healey

- 09:30 Wind-induced creaking in tall buildings**
Alec Korchev, Clarke Saunders Acoustics; London South Bank University
Ed Clarke, Clarke Saunders Acoustics
Stephen Dance, Ottavia Rispoli, London South Bank University
- 10:00 Quantitative measurements of lightweight timber floors using low-frequency impact source; analysis of the accuracy of 1/3 octave band heavy-hard impact prediction modelling in lightweight structures**
Tim Patzke, Pliteq
- 10:30 Investigating vibration effects on wooden frame buildings: a focus on CLT response to traffic-induced vibration**
Jorge D'Avillez, Zijiang Yang, WSP Acoustics UK
- 11:00 Refreshments**
- 11:30 Reducing embodied carbon in heavyweight acoustic design**
Tom Van Dongen, Mason UK
- 12:00 Building acoustics and sustainability – Some real-world examples**
Ben F Burgess, Atelier Ten
- 12:30 Towards a simplified model for partially open windows: use of Equivalent Area for both acoustic and thermal comfort assessments**
James Healey, Jonathan Howell, Peninsular Acoustics
Jack Harvie-Clark, James Hill, Luis Pereira, Julien Batten, Apex Acoustics
Gioia Fusaro, University of Bologna
- 13:00 Building Acoustics Group AGM**
- 13:00 Lunch**
- 14:00 Speech babble as sound masking in open plan offices – a statistical approach**
Pete Leonard, Anthony Chilton, Max Fordham
- 14:30 Sound power of normal speech for building acoustics**
Carl Hopkins, Simone Graetzer, Gary Seiffert, University of Liverpool
- 15:00 Refreshments and Close**
- 15:30 Optional visit to Salford University Energy House to see it set up and in use**

FRIDAY 13 SEPTEMBER 2024

ROOM 2**MEASUREMENT & INSTRUMENTATION**

Chair: Simon Bull

- 09:30** **From Sky to Shaker: A laboratory method for replicating and evaluating drone-induced vibration on the integrity of medical products**
Katherine Theobald, Timothy Waters, University of Southampton;
Wanjing Zhu, Thomas Cherrett, Paul G Royall, Kings College London
- 10:00** **When barriers fall down- Identifying common errors in noise barrier designs for environmental applications**
Giles Parker, Sound Barrier Solutions
- 10:30** **Towards an in-direct method for low frequency sound transmission**
Toby Charity, Joshua W R Meggitt, University of Salford,
- 11:00** **Refreshments**
- 11:30** **Different logging rates for measuring the prominence of impulsive sounds and for adjustment of LAeq**
Douglas Manvell, DMdB, Denmark
Thom King, Michael Whiteman, Hottinger Brüel & Kjaer, Denmark
- 12:00** **Acoustic beamforming for a pipe inspection robot**
Yicheng Yu, Kirill Horoshenkov, Anton Krynkin, , Simon Tait, University of Sheffield,
- 12:30** **Frequency and directivity characterisation of air source heat pumps**
Max Aaron Radivan, Lucy Barton, Antonio Torija Martinez, Jonathan Hargreaves, Volkan Acun, Simone Graetzer,
Daniel Wong-Mcsweeney, David Waddington, University of Salford
- 13:00** **Measurement & Instrumentation AGM**
- 13:00** **Lunch**

MEASUREMENT & INSTRUMENTATION

Chair: John Shelton

- 14:00** **An acoustic vector receiver for wall condition assessment in a water-filled pipe**
Joanna Watts, Kirill Horoshenkov, University of Sheffield
- 14:30** **Measurement uncertainty in sound insulation**
Bill Whitfield, noise.co.uk
- 15:00** **Refreshments and Close**

FRIDAY 13 SEPTEMBER 2024

ROOM 3**SOUND, NOISE AND HEALTH**

Chair: Benjamin Fenech

- | | |
|--------------|--|
| 09:30 | National Highways' noise KPI mitigation planning and implementation
<i>Andrew Beamish, National Highways</i> |
| 10:00 | Strength of community and good PR overcome traditional noise limits for music venue
<i>James Hill, Jack Harvie-Clark, Geoff Venus, Apex Acoustics; Peter Rogers, Sustainable Acoustics
Francesco Aletta, Jian Kang, University College London</i> |
| 10:30 | Association between perceived acoustic comfort and wellbeing for schoolteachers at work: a cross-sectional survey in the UK
<i>Hatice Kübra Kuruköse Çal, Francesco Aletta, Jian Kang, UCL Institute for Environmental Design and Engineering,</i> |
| 11:00 | Refreshments |
| 11:30 | Noise disturbance – baseline level monitoring in the Solent
<i>Najwa Adnan-Smith, Tetra Tech</i> |
| 12:00 | Crossing the theory to practise divide on soundscape
<i>Peter Rogers, Sustainable Acoustics</i> |
| 12:30 | Thames Tideway Tunnel – The management of construction noise taking account of individual circumstances and sensitives
<i>Graham Parry, ACON UK; Stephen Turner, Stephen Turner Acoustics</i> |
| 13:00 | Sound, Noise & Health AGM |
| 13:00 | Lunch |
| 14:00 | Planning for sound from ASHPs: options, risks and opportunities
<i>Jack Harvie-Clark, Nick Dobinson, Ross Latue, Apex Acoustics; Matt Torjussen, ANV; Peter Rogers, Sustainable Acoustics; Rebecca Hogg, BSRIA; James Allan, East Herts District Council; Angela Blackburne Wallis, Newcastle City Council</i> |
| 14:30 | Understanding acoustics in vessel/ship cabins: Implications for crew well-being and performance
<i>S O Ologe, University Polytechnic of Catalonia, Spain; U P Anaidhuno, Federal University of Petroleum Resources, Delta State</i> |
| 15:00 | Overview of QuietDrones 2024: International Conference on Noise of Advanced Air Mobility Aircraft
<i>Antonio J Torija Martinez, University of Salford</i> |
| 15:30 | Refreshments and Close |

FRIDAY 13 SEPTEMBER 2024

ROOM 4**MUSICAL ACOUSTICS**

Chair: Stephen Dance

- 09:30** **Face the music: key findings in a 20-year plan**
Stephen Dance, London South Bank University; Geogia Zepidou, Aecom
- 10:00** **Noise exposure of musicians in amateur wind bands**
David Yates, Syntegra Consulting
- 10:30** **Application of the missing fundamental as a method of low frequency noise control at outdoor music events**
Peter J Wheeler, Acoustic Consultants & Open University; David Sharp, Shahram Taherzadeh, Open University
- 11:00** **Refreshments**
- 11:30** **Acoustic spectrogram for evaluating the effectiveness of acceptance and commitment training (act) as a music performance anxiety (mpa) management method for professional singers**
Gökçe Kutsal, Sounteria Ltd; D Winter, Voice Study Centre, University of Wales Trinity Saint Davids; D G Juncos, University of Wales Trinity Saint David, Hornstein, Platt & Associates,
- 12:00** **Acoustics of a choir rehearsal room.**
Vincent Tham Jee Sheng, Stephen Dance, London South Bank University
- 12:30** **The historical auralisation of Lichfield cathedral's quire**
George Moore, Benjamin West & Islah Ali-Machlachlan, Birmingham City University
- 13:00** **Musical Acoustics Group AGM**
- 13:00** **Lunch**

MUSICAL ACOUSTICS

Chair: David Sharp

- 14:00** **Double reed sound production on the bass crumhorn**
Marco George Aragó Bishop, Murray Campbell, Alan Wooley, The University of Edinburgh
- 14:30** **Listener evaluation of real and synthesised impulse response desirability using convolution with the violin string signal**
Patrick Gaydecki and Jiaxi You, The University of Manchester
- 15:00** **A machine learning approach to noise suppression and timbre enhancement of early 20th century music**
Jiaxi You, Patrick Gaydecki, Claire Mitchell, University of Manchester
- 15:30** **Refreshments and Close**

FRIDAY 13 SEPTEMBER 2024

ROOM 5**ROYAL ENVIRONMENTAL HEALTH INSTITUTE OF SCOTLAND (REHIS)
CHARTERED INSTITUTE OF ENVIRONMENTAL HEALTH (CIEH)**

Chair: Stephen Turner

09:30 **Healthy sound environments: surviving engagements with EHPs**
Paul McCullough, Somayya Yaqub, CIEH

10:00 **TBC**

10:30 **TBC**

11:00 **Refreshments**

11:30 **Regulatory experience and challenges**
Louise Manson, REHIS

12:00 **Regulatory challenges in outdoor concerts**
Claire Devlin, REHIS

12:30 **Open Discussion**

13:00 **Lunch**

PHYSICAL ACOUSTICS

Chair: Shahram Taherzadeh

14:00 **Influence of pore wall roughness on sound absorption**
Keith Attenborough, The Open University

14:30 **Sound transmission through rigid porous materials with and without perforations**
Haydar Aygun, London South Bank University

15:00 **Teaching room comfort: compatibility between noise, heat and ventilation in educational spaces**
Elena Prokofieva, Edinburgh Napier University

15:30 **Refreshments and Close**

POSTERS

Sustainability – design of acoustic systems: reducing embodied carbon

Tim Patzke, Pliteq UK

Comparative analysis of MFCC and GTCC in Laryngeal Pathology Detection based on electroglottographic signals

Julia Zofia Tomaszewska University of West London, Christos Chousidis, University of Surrey, Apostolos Georgakis, University of West London

Why the A-weighting network is inadequate for measuring noise exposure with a high content of infrasound and low frequency noise – A computational approach

Farhad Forouharmajd, Isfahan University of Medical Sciences, Iran

A draft conceptual framework for a new international standard on non-acoustic factors

Lisa Woodland, Julie Chieng, Benjamin Fenech, UK Health Security Agency (UKHSA);

Lisa Lavia, Noise Abatement Society;

Francesco Aletta, Jian Kang, Andrew Mitchell, Univesity College London

Testing of Noise & Vibration Isolated Floor-Ceiling Setups for Cross Laminated Timber (CLT) Constructions

Sarah Huskie, CDM Stravitec

Soundscape, perceived control and engagement: developing a grounded theory for salutogenic spatial planning

Lisa Lavia, Noise Abatement Society and Heriot-Watt University

Caroline Brown, Scotland, Ireland & English Regions, Royal Town Planning Institute

Sarah Payne, University of Surrey
