23rd International Congress on Acoustics integrating 4th EAA Euroregio 2019

ICA 2019 AACHEN

European Acoustics Association EAA

ICA ITA RWTH AACHEN UNIVERSITY IUPAP DEGA

PROGRAM

HEAD acoustics

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Welcome by the Conference Chairs

Dear congress participants,

The organizers are pleased to welcome you to the 23rd International Congress on Acoustics in the beautiful and historical city of Aachen. The congress integrates the 4th EUROREGIO 2019, the regional conference of the European Acoustics Association. The technical program includes plenary, invited, contributed, and poster papers covering all aspects of acoustics in a very wide interdisciplinary range. In addition, there will be several special events focusing on Early Career Acousticians, on Acoustics in Industry, and on Public Outreach. Many activities are already in the context of preparation of the International Year of Sound 2020, organized by the International Commission for Acoustics.

As the congress chairs, we like to thank all the authors, session and topic organizers for their contributions to the event. Special thanks go to the Technical Chair, Martin Ochmann, and his team for acquiring 147 structured sessions and for arranging further 14 general sessions. Our sincere appreciation goes to the sponsoring and supporting companies and institutions.

We also extend our gratitude to the colleagues supporting us in the preparation of the congress, namely the EUROREGIO Chairs Dick Botteldooren and Gijsjan van Blokland, the members of the Technical Committee Brigitte Schulte-Fortkamp and Klaus Genuit, and last but not least, the professional congress organizers at DEGA, Teresa Lehmann and Julia Schneiderheinze, and Karin Charlier and the whole staff at the Institute of Technical Acoustics of RWTH Aachen University, who suffered days and weeks of additional workload.

The international family of acoustics benefits from the presentations, which are created, presented and set to discussion (and also criticism) by you, dear participants. The program committee has tried to arrange the conference as effective and pleasant as possible for you. We wish that ICA/EUROREGIO 2019 will leave a reverberant trace of scientific knowledge, innovative ideas and products and also a permanent trace of collegial, international and interdisciplinary cooperation.

Michael Vorländer, Conference Chair
Janina Fels, Conference Co-Chair

Welcome by the ICA President

It is with great pleasure that I welcome you on behalf of the International Commission for Acoustics (ICA), to the 23rd International Congress on Acoustics (ICA 2019) in Aachen.

The mission of the ICA is to promote international development and collaboration in all fields of acoustics, and a major means of achieving this goal is the International Congress on Acoustics held every three years in a different region of the world. Six years ago, the organization of the 23rd International Congress on Acoustics was commended to the German Acoustical Society (Deutsche Gesellschaft für Akustik, DEGA) which made an excellent job in preparing the event. In particular, I would like to thank the Congress Chair, Michael Vorländer, the Congress Co-Chair, Janina Fels, the Program Chair, Martin Ochmann and the members of all the Committees that worked hard over the last three years to prepare a rich program covering all fields of acoustics. The Congress participants will have the opportunity to listen to five distinguished plenary speakers, to attend numerous technical sessions and discuss recent developments in all the areas of acoustics. In addition, they will be able to visit the technical exhibition on latest advances in acoustical products and solutions and also to enjoy the beauty of the historical city of Aachen. The organizers prepared everything in the most efficient way and I am sure the ICA 2019 will be a model for all future ICA Congresses.

ICA invests on the young generation of acousticians. This year, the board of the ICA with the support of the Acoustical Society of America (ASA) and the DEGA provided 58 “Young Scientist Conference Attendance Grants” on the basis of excellence that will help young acousticians from all over the world to come to Aachen and present their work in an audience of distinguished acousticians.

It should be pointed out that the ICA 2019 is in fact a major event on Acoustics world-wide as it integrates the 4th EAA Euroregio 2019, the EAA Summer School, and three satellite Symposia held in Germany, France, The Netherlands, and Belgium. Thus, the heart of the acoustics will beat this year for more than 10 days in Central Europe. Thus, ICA 2019 can be considered as a precursor of the International Year of Sound 2020, which is an initiative of the ICA aiming to bring, by means of numerous world-wide events to be held in 2020, the message of the importance of sound for the society and the whole world.

Many thanks to the International Union of Pure and Applied Physics (IUPAP) for their support to the Conference, to all the Conference Sponsors and above all to all of you for attending the Conference,
thus contributing actively to its success.

Michael Taroudakis,
President of the International Commission of Acoustics

Welcome from the European Acoustics Association (EAA)

Dear colleagues,

On behalf of the European Acoustics Association (EAA), it is my great pleasure to welcome all of you to the 23rd International Congress on Acoustics, ICA 2019, that is going to be held in the beautiful and historic city of Aachen, Germany, between 9th and 13th, September, 2019.

The ICA Congresses, being one of the most important Forums for those around the world working in all areas of Acoustics, integrates, this time, an EAA event called EUROREGIO 2019, with invited papers focusing on European projects, educational programs, standards, and legislation.

The European Acoustics Association is proud to contribute and be partner of this huge gathering, which attracts and concentrates scientists, researchers, practitioners, exhibitors, interested people, and students, coming from all over the world, aiming to the progress and promotion of acoustics and its related matters.

I want to express my sincere thanks for the commitment, dedication and involvement of the EAA National Societies that have taken in charge the organization of EUROREGIO 2019, respectively: The Belgian Acoustical Society (ABAV), the German Acoustical Society (DEGA) and the Dutch Acoustical Society (NAG), as well as the corresponding Chairs: Dick Botteldooren and Gijsjan van Blokland.

The EAA is a supranational association composed of 32 Societies, almost all from European Countries, congregating around 9000 acousticians in the European territory. The EAA endorses 3 types of international events in a three year rotation cycle: the FORUM ACUSTICUM, the EURONOISE and the EUROREGIO. Preceding every EUROREGIO, there is normally an EAA School addressed for young acousticians, which runs this year from 6 to 8th September in Leuven, being such considered a satellite event of ICA 2019. In this regard, I want to thank its Chairs for the work they have had for the purpose: Monika Rychtáriková (KU Leuven) and Armin Kohlrausch (TU Eindhoven).

Integrated in a program of young acousticians' support and stimulating, the EAA usually launches in its yearly events a scientific competition among young researchers named "Best paper and presentation award". This year, the competition comprising 10 awards kindly sponsored by the HEAD Genuit Foundation, was also extended to all ICA Congress young participants. Around 130 applications have been submitted, which makes us very happy. The corresponding winners will be announced at the closing ceremony of ICA 2019.

Before ending, I want to draw your attention to the possibility to publish your paper in the EAA Journal (Acta Acustica), which is going to be full Open Access from next January onwards, and also stress the importance of your participation in ICA 2019.

Finally, I want to deeply thank the involvement of all supporting institutions and specially thank the ICA 2019 organizing committee, whom under the leadership of Professor Michael Vorländer, has done a tremendous and outstanding job for the success of ICA 2019 and consequently for EUROREGIO 2019.

Please take the opportunity to enjoy the Congress and to dive into the history of the City of Aachen!

Jorge Patrício,
President of the European Acoustics Association

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Initiated by:

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INTERNATIONAL COMMISSION FOR ACOUSTICS

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EAA European Acoustics Association

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- Congress Vice-Chair:
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- Technical Program Chair:
  Martin Ochmann (Beuth University of Applied Sciences Berlin)
- EUROREGIO Co-Chair:
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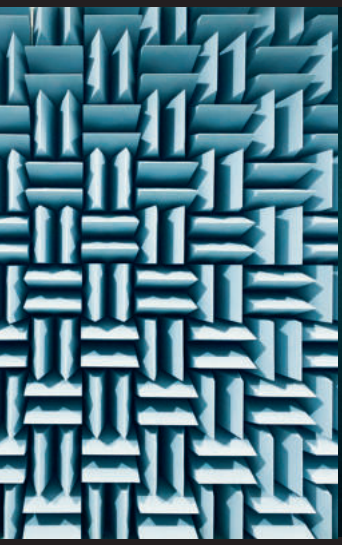

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General Information

WIFI at the Conference

Eurogress area
Network: ICA2019
Password: ICA#2019

Quellenhof area
Network: M3connect
Works without password.

Registration Desk

The registration desk and conference office are located in the entrance hall.

Opening hours:

Sunday, 8 September | 16:00-18:00
Monday, 9 September | 08:00-18:00
Tuesday, 10 September | 08:00-18:00
Wednesday, 11 September | 08:00-18:00
Thursday, 12 September | 08:00-17:00
Friday, 13 September | 08:00-16:00

Media Check-in

At the media check-in, the presentation slides of oral presentations shall be uploaded and previewed (possible until 30 minutes before the start of your session). It is located left-hand of the entrance.

Opening hours:

Monday, 9 September | 10:00-18:00
Tuesday, 10 September | 08:00-18:00
Wednesday, 11 September | 08:00-18:00
Thursday, 12 September | 08:00-18:00
Friday, 13 September | 08:00-14:00

Additional Information on the Technical Program

Program App

The full program - interactive and always up-to-date - is available at http://app.ica2019.org/

Here you can arrange your personal schedule, browse the exhibitors list and check the interactive floor plan. You can use the app for free and with any device, download is not necessary.

Conference Proceedings

The official conference proceedings of ICA 2019, integrating EAA Euroregio, are now available. Please find the link at: http://www.ica2019.org/

Information on Posters

All Posters will be presented on the first floor foyer, next to the plenary hall.
A dedicated Poster Forum will take place at the following times, to turn the spotlight exclusively on the poster presentations:

- Tuesday, 10 September | 15:40 - 16:20
- Wednesday, 11 September | 15:20 - 16:00
- Thursday, 12 September | 15:40 - 16:20

For the detailed location of particular posters, please watch out for the poster zone as indicated in the app and floor plans.

In accordance with the program, the printed posters shall be placed and removed exactly at the following times. Materials for fixing the posters will be provided.

- If your Poster Forum is on Tuesday:
  Place on Monday until 12 am / Remove on Tuesday until 6 pm
- If your Poster Forum is on Wednesday:
  Place on Wednesday until 10 am / Remove on Wednesday until 6 pm
- If your Poster Forum is on Thursday:
  Place on Thursday until 10 am / Remove on Friday until 4 pm

Photography and Video Recording

Photography and video recording of any lecture or poster is not permitted.

Program Overview

Monday, 9 September

- Opening ceremony (9:00 - 10:45, see p. 52)
- Plenary lecture (11:15 - 12:00, see p. 58)
- Technical Sessions and exhibition (afternoon)
- 5-minute Research Story Competition (13:20 - 15:20, see p. 48)
- Presentation of the young acousticians societies (15:20 - 18:00, see p. 48)
- Opening and exhibition reception (18:00 - 19:00, see p. 52)

Tuesday, 10 September

- Technical Sessions and exhibition (all-day)
- Plenary lecture (11:45 - 12:30, see p. 58)
- Technical visits (see p. 50)
- Science communication panel (16:20 - 18:00, see p. 48)
- Organ Concert in Cathedral (19:00, see p. 52)

Wednesday, 11 September

- Technical Sessions and exhibition (all-day)
- Plenary lecture (11:45 - 12:30, see p. 58)
- Technical visits (see p. 50)
- Interactive session: Education in acoustics (15:30 - 17:30, see p. 49)
- General Assembly of ICA (16:00 - 18:00, see p. 46)
- Social Evening at Ludwig Forum (for all participants, see p. 53)

Thursday, 12 September

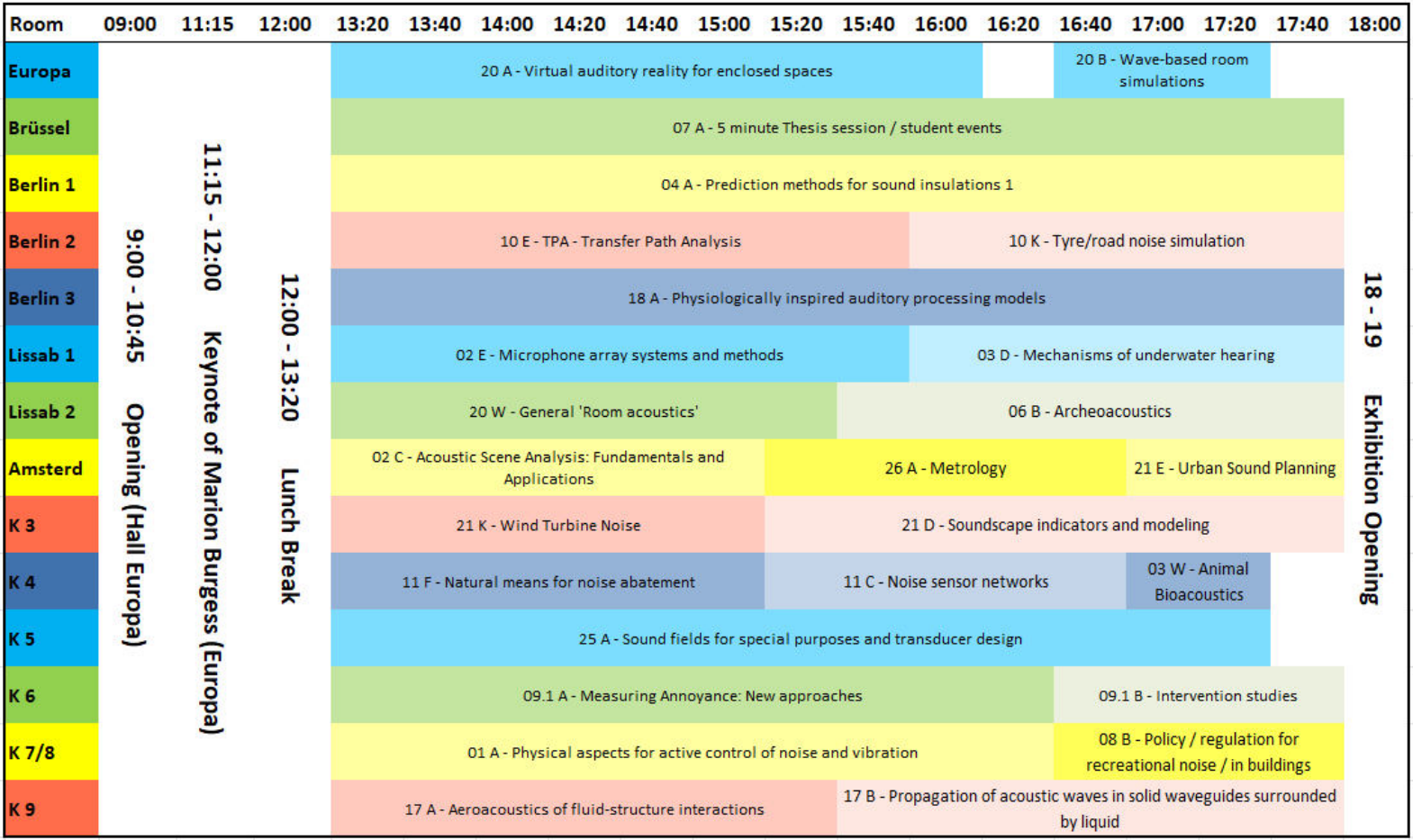
- Technical Sessions and exhibition (all-day)
- Plenary lecture (11:45 - 12:30, see p. 58)
- UKAN/ITN ENRICH: Careers in industry&academia worksh. (16:20, see p. 49)

Friday, 13 September

- Technical Sessions and exhibition (all-day)
- Plenary lecture (11:45 - 12:30, see p. 58)
- Closing ceremony with EAA Best Paper Award presentation (17:00, see p. 53)
- Closing reception hosted by ICA 2022 (Gyeongju, Korea)

Last-minute changes of the program can be found in the App: http://app.ica2019.org/

Technical Program MONDAY



Technical Program TUESDAY

Room	08:40 09:00 09:20 09:40 10:00 10:20 10:40 11:00 11:20	11:45 - 12:30	12:30 - 14:00	14:00 14:20 14:40 15:00 15:20	15:40 - 16:20	16:20 16:40 17:00 17:20 17:40
Europa	20 H - Open Plan offices			20 H - Open Plan offices		20 H - Open Plan offices
Brüssel	04 F - Advanced measurement techniques in building acoustics			04 F - Advanced measurement techniques in building acoustics		04 F (continued) / 04 H - Insulating and absorbing materials made from renew. 1
Berlin 1	04 A - Prediction methods for sound insulations 2 / 04 D - Structure-borne sources in buildings			04 D - Structure-borne sources in buildings		16 C - Trends in health and safety in the musician's workplace with regard to sound exposure levels
Berlin 2	27 B - Audio for Mobile VR/AR / 10 G - Aircraft noise			10 G - Aircraft noise / 10 F - Railway noise		10 F - Railway noise / 22 W - General 'Sound design'
Berlin 3	18 D - Binaural models: Algorithms and applications			18 D - Binaural models: Algorithms and applications		18 D (continued) / 18 L - learning / auditory pro-cessing: brainstem to cortex
Lissab 1	02 D - Loudspeaker arrays and sound field control			02 D - Loudspeaker arrays and sound field control		02 D - Loudspeaker arrays and sound field control
Lissab 2	20 C - Recent advances in sound absorption and diffusion of materials/devices			20 C (continued) / 20 D - Acoustics of cultural heritage buildings 1		20 D - Acoustics of cultural heritage buildings 1
Amsterd	12 C - Speech processing for normal-hearing and hearing-impaired listeners			15 B - Numerical methods for acoustic materials and metamaterials		24 C - Vibro-acoustic behavior of structure under multi-field environments
K 3	06 C - Philosophy in Acoustics / 21 B - Soundscapes of public spaces			21 B - Soundscapes of public spaces		07 B - Speaker Panel on Science Communication
K 4	18 F - Compensation strategies in cochlear implants			14 B - Sound propagation and Monitoring in Underwater Acoustics		14 B - Sound propagation and Monitoring in Underwater Acoustics
K 5	13 B - Flow acoustics of the human phonation / 13 C - Fan noise			13 C - Fan noise		13 C - Fan noise
K 6	09.1 C - Perception of and responses to infrasound and low-frequency sound including wind turbines			09.1 C - Perception of and responses to infrasound... / 09.1 F - Traffic con-ditions and annoy.		09.1 F - Traffic conditions and annoyance / 09.2 C - Cardio-vascular effects
K 7/8	11 E - Environmental sound auralisation			11 E - Environmental sound auralisation / 11 D - Advances in noise mapping...		11 D - Advances in noise mapping engineering methods
K 9	17 C - Aeroacoustics and noise control / 17 E - Acoustics of holes and dampers with mean flow			17 E - Acoustics of holes and dampers with mean flow / 17 D - Acoustic Metamaterials 1		17 D - Acoustic Metamaterials 1

11:45 - 12:30 Keynote of Shrikanth Narayanan (Europa)

12:30 - 14:00 Lunch Break

15:40 - 16:20 Posterforum on 1st floor foyer

Technical Program WEDNESDAY

Room	08:40	09:00	09:20	09:40	10:00	10:20	10:40	11:00	11:20	11:45 - 12:30	12:30 - 14:00	14:00	14:20	14:40	15:00	15:20 - 16:00	16 - 18
Europa	20 M - Effects of noise and room acoustics on communication among occupational voice users									Keynote Christopher Wiebusch & Tim Otto Roth	Lunch Break	20 M (continued)		05 W - Education in Acoustics		Posterforum on 1st floor foyer	ICA General Assembly
Brüssel	04 H - Insulating and absorbing materials made from renewables 2						04 G - Low frequency sound and vibration in buildings					04 G - Low frequency sound and vibration in buildings					
Berlin 1	04 K - Facade Sound Insulation											18 C - Rehabilitative audiology					
Berlin 2	20 F - Sound absorption including the reverberation room issues, new trends revision ISO 354											20 F - New trends revision ISO 354					
Berlin 3	18 H - Audio-visual (speech) perception							18 K - multisens. processing, auditory perc.				18 K - Influences of multisensory processing on auditory perception					
Lissab 1	02 B - Acoustic and audiovisual source localization 1					02 F - Perception spatial audio processing		02 G - Phase-Aware Time-Frequency S. Pr.				02 B - Acoustic and audiovisual source localization 2					
Lissab 2	20 D - Acoustics of cultural heritage buildings 2											18 N - Parcellating the functions of human auditory cortex					
Amsterd	24 B - Numerical analysis and experiment on structural acoustics											24 G - Human Vibration					
K 3	21 O - digitalization of Unesco + Unique sites		21 N - Trends...technology in soundscape, design and planning			21 F - Indoor soundscaping and acoustic comfort						21 F - Indoor soundscaping and acoustic comfort					
K 4	08 K - European harmonized calculation model for environmental noise CNOSSOS							08 H - EPA Network-IGNA				08 H - EPA Network-IGNA: Progress report...to abate noise in Europe					
K 5	10 D - Road Traffic Noise Prediction Methods											14 A - Signal processing and inversion in underwater acoustics 1					
K 6	09.1 G - Response to transportation noise and vibration						09.2 B - Cognitive effects					09.2 A - Sleep					
K 7/8	11 B - Wind turbine noise		11 A - Outdoor sound propagation (including urban sound propagation)									11 A - Outdoor sound propagation (including urban sound propagation)					
K 9	01 B - Applications of active control of noise and vibration											03 A - Acoust. Signal Proc., biol. Syst.		03 B - Evolution of the ear			

Technical Program THURSDAY

Room	08:40 09:00 09:20 09:40 10:00 10:20 10:40 11:00 11:20	11:45 - 12:30 Keynote of Jérémie Voix (Europa)	12:30 - 14:00 Lunch Break	14:00 14:20 14:40 15:00 15:20	15:40 - 16:20 Posterforum on 1st floor foyer	16:20 16:40 17:00 17:20 17:40 18:00
Europa	20 G - Acoustical needs for comfortable and inclusive learning spaces			20 G - Acoustical needs for comfortable and inclusive learning spaces		20 G - Acoustical needs for comfortable and inclusive learning spaces
Brüssel	16 W - General 'Musical acoustics' / 04 L - floor impact sound insul.			04 L - Evaluation of floor impact sound insulation		04 B - Sound insulation in wooden construction
Berlin 1	04 C - Acoustic regulations and quality classes for buildings 1			04 C (Part 1 continued)		
Berlin 2	27 C - Sound field rendering in Virtual Realilty			12 A - Spatial audio: Reproduction techniques and signal processing 1		12 A - Spatial audio: Reproduction techniques and signal processing 1
Berlin 3	18 M - Statistics in auditory scenes			18 M - Statistics in auditory scenes / 18 B - Objective measures of auditory function		18 B - Objective measures of auditory function
Lissab 1	02 W - General 'Audio signal processing (measurement, sensors, arrays)' / 02 A - Microphone array methods in room ac.			02 A - Microphone array methods in room acoustics		02 A - Microphone array methods in room acoustics
Lissab 2	20 P - Room acoustical simulation methods for high and low frequencies			20 P - Room acoustical simulation methods for high and low frequencies		20 P - Room acoustical simulation...high and low frequencies
Amsterd	24 A - Shape and topology optimization of vibroacoustic structures / 24 D - Inverse problems in vibration and acoustics			24 D - Inverse problems in vibration and acoustics		24 D - Inverse problems in vibration and acoustics
K 3	21 A - Towards standardized soundscape methodologies			23 B - From audio and speech quality to Quality of Experience and Aesthetic Appeal		23 B / 23 W - General 'Speech'
K 4	10 C - Design and control of the sound environment in a vehicle cabin / 13 A - Flow duct acoustics			13 A - Flow duct acoustics		01 C - Metamaterials for active and passive acoustic control / 08 W - Noise and vibration policy and assessment
K 5	14 A - Signal processing and inversion in underwater acoustics 2 / 13 D - Computational flow-generated hydroacoust.			13 E - Aeroacoustics and Flow Controls		13 E - Aeroacoustics and Flow Controls
K 6	16 A - Articulation and other transients			15 A - Uncert. Quantif. in Aero- and Vibro-Ac. / 15 W - General 'Numerical, computat. and theoret. acoustics'		15 D - Boundary and finite element methods in acoustics and vibration 1
K 7/8	19 W - General Psychoacoustics / 19 B - Binaural Phenomena in Psychoacoustics			19 B - Binaural Phenomena in Psychoacoustics / 19 E - Metrics and Modeling...		19 E - Metrics and Modeling Perception of Sound Attributes
K 9	17 D - Acoustic Metamaterials 2 / 17 F - Acoustic propag. Flames...			17 F - Acoustic propagation and flames in combustors / 25 C		25 C - High-frequency and ultrasonic emissions in air: Applications, measurement and human well-being

Technical Program FRIDAY

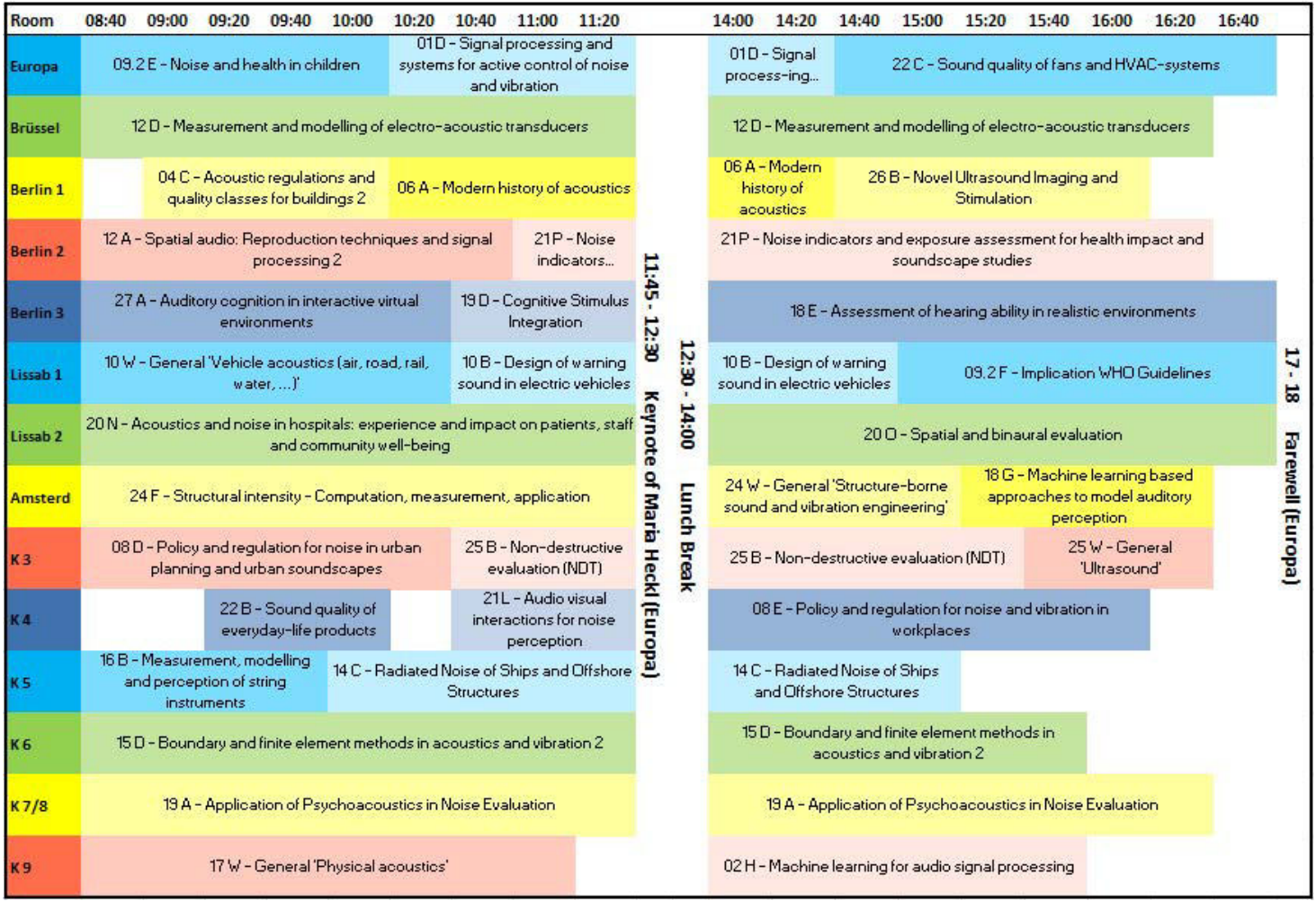


Table of Lectures and Posters

Monday, September 9, 2019

	Europa
09:00	**Opening Ceremony** (see p. 52)
10:45	Coffee Break
11:15	**Keynote Lecture Marion Burgess** ”Sound and Noise around us” (see p. 58)
12:00	Lunch Break

	Europa	Brüssel	Berlin 1	Berlin 2	Berlin 3	Lissabon 1	Lissabon 2
	Room acoustics 20 A (p. 60)	**Five minutes thesis slam** (p. 22)	**Building acoust. 04 A** (p. 62)	**Vehicle acoust. 10 E** (p. 63)	**Phys., psych. and aud. 18 A** (p. 65)	**Signal processing 02 E** (p. 66)	**Room acoustics 20 W** (p. 68)
13:20	Jot: Interactive Audio Scene Model	5 Min Thesis session	Guigou-Carter: Sound attenuation ventilation	Lee: TPA for powertrain	Sumner: Ray Meddis, Model Scientist	Xiang: Bayesian direction of arrivals	Prodi: Short term application of STI
13:40	Kashiwazaki: Total performance improv.	5 Min Thesis session	Soussi: Transmission of Windows	Elliott: In-Situ Transfer Path Analysis	Van Gendt: Predict. intracochlear ECoG	Elko: Microphone array processing	Lorenz-Kierakiewitz: Multidimens. Cluster Analy.
14:00	Georgiou: Simul. of benchmark room	5 Min Thesis session	Chen: Single- and Double-Glazing Panels	Barton: In-Situ Transfer Path Analysis	Ashida: Simple Aud. Neuron Models	Yu: Non-synchr. measurements	Horvat: Multipurpose Halls Croatia
14:20	Fallahi: BRIRs Virtual Artificial Head	5 Min Thesis session	Huang: Aluminum Framings	Anisovich: Vibrating plate Airborne MIM	Borst: Prespike calyx of synapse	Stanojevic: Noise spatial distribution	Peretokin: Acoustics of FIFA stadiums
14:40	Coffee break	5 Min Thesis session	Loverde: Rebuild repeatability	Coffee break	Coffee break	Bölke: Damage Detection Array	Neidhardt: Perception OBRIR techniques
15:00	Thery: VR Anechoic Database	5 Min Thesis session	Reynders: Robust radiation prediction	Jürgens: Transfer Path Analysis	Encke: Binaural incoh. detection	Hahmann: Learned Sound Field	Anderson: Echo identification

Last-minute changes of the program can be found in the App: http://app.ica2019.org/

	Amsterdam	K3	K4	K5	K6	K7/K8	K9
	Signal processing 02 C (p. 69)	**Soundscape 21 K** (p. 71)	**Environment. sound 11 F** (p. 73)	**Ultrasound 25 A** (p. 74)	**Health effects 09.1 A** (p. 75)	**Active acoust. systems 01 A** (p. 77)	**Physical acoust. 17 A** (p. 78)
13:20	David: Binding of speech syllables	Cooper: Synthesised Test Signals	Attenborough: Natural noise control	Koo Sin Lin: Study of sound field in films	Hooper: Meaning of Noise Annoyance	Makiyama: Effectiveness ANC Partition	Talboys: Trailing Edge Flaplets
13:40	Siedenburg: Musical scene analysis	Cooper: Simplified AM Analysis	Suravi: Sound propagation in soil	Johansson: High intensity cavitation zone	Wothge: Multiple Question Scales	Bai: Inverse filter design	Weidenfeld: Inhomogeneous airfoil noise
14:00	Löllmann: Blind RT Estim. Algorithms	Cooper: IWind Farm Noise	Romanova: Sound control by greening	Merkel: Small-Sized Resonators	Schreckenberg: Aircr. noise annoyance scale	Cherkkil: ANC CFD Simulation	Chen: Aeroelastic vortex sound
14:20	Emmanouilidou: Acoustics and audio events	Radun: Variables and WTN annoy.	Ostashev: Sound Propagation in Forest	Henneberg: Transducer Optimization	Gjestland: Road traffic noise annoyance	Abhayapala: Spatial Noise Control	Herr: Wind Turbine Blade Tips
14:40	Anemüller: Deep network localization	Coffee break	Li: Absorption by Tree Bark	Wasmer: Ultrasonic sensor	Kuwano: Studies of Annoyance	Coffee break	Baddoo: Porous blades row acoustics
15:00	Lizaso: Virtual auditory scenes	Coffee break	Coffee break	Zhang: Pressure detection CMUT	Coffee break	Wang: Local quiet zones	Coffee break

Monday, September 9, 2019 (continued)

	Europa	Brüssel	Berlin 1	Berlin 2	Berlin 3	Lissabon 1	Lissabon 2
	Room acoustics 20 A (p. 60)	**Student Events** (p. 22)	**Building acoust. 04 A** (p. 62)	**Vehicle acoust. 10 E** (p. 63)	**Phys., psych. and aud. 18 A** (p. 65)	**Signal processing 02 E** (p. 66)	**Room acoustics 20 W** (p. 68)
15:20	Sampedro Llopis: Localiz. 3D AVR system	Student Events	Coffee break	Albert: Physics-Informed TPA and GP	Zaar: Predicting speech intelligib.	Vincent: Acoustic transfer admittance	Accolti: Gypsum sphere 7m
							History 06 B (p. 69)
15:40	Yairi: 3ch OSD for off-axis listeners	Student Events	Yamasaki: FEM on a TLF Measurement	Taguchi: Contribution to road noise	Osses: Sound perception modelling	Doclo: Joint Parameter Estimation	Díaz-Andreu: Prehistoric landscapes
				Tyre road n. 10 K (p. 64)		**Animal Bioac. 03 D** (p. 67)	
16:00	Coffee break	Student Events	Dijckmans: Double wall junctions	Kropp: Tyre cavity resonances	Bruce: Modeling genetic hearing loss	Wahlberg: Threshold units	Valiere: Method. to Archaeoacoustics
16:20	Coffee break	Student Events	Ljunggren: Insulation CLT Panels	De Gregoriis: Prediction of tire hub forces	Coffee break	Nummela: Evolution of Cetacean Hearing	Polack: Montivilliers Abbey
	20 B room simul. (p. 61)						
16:40	Yoshida: A locally implicit TDFEM	Student Events	Churchill: Thermal cladding systems	Poulikakos: Waste for silent roads	Epp: SOAEs as clusters	Christensen-Dalsgaard: Underwater Tympanic Ear	Coffee break
17:00	Pind: BCs High-Order Nodal FEM	Student Events	Perras: Geometrically complex walls	Goubert: Poro-elastic pavement	Murakami: Bone conduction in cochlea	Beedholm: Late and Slow Porpoise AEPs	Poirier-Quinot: VR reconstructions for study
17:20	Wang: Time-domain Impedance	Student Events	Luykx: High sound insulations	Bou Leba Bassil: CFD Model Volume Variation	Rimskaya-Korsakova: Pulse periph. coding	Larsen: Cormorant Underwater Hearing	Boren: Elizabeth I Tilbury Speech
17:40		Student Events	Uthayasuriyan: Equivalent plate models	Edwards: Trolley Wheel Param. Study	Alrutz: Single Fiber EAS Model	Van Hemmen: Underwater ICE	Lubman: Numinous responses

18:00 **Opening of Exhibition Reception** (see p. 52)

	Amsterdam	K3	K4	K5	K6	K7/K8	K9
	Biometr. Ultrasound 26 A (p. 70)	**Soundscape 21 D** (p. 72)	**Environment. sound 11 C** (p. 73)	**Ultrasound 25 A** (p. 74)	**Health effects 09.1 A** (p. 75)	**Active acoust. systems 01 A** (p. 77)	**Physical acoust. 17 B** (p. 79)
15:20	Jenkinson: Low Frequency RFB	Oberman: Towards ESSI	Alsina-Pagès: DYNAMAP Event Detector	Coffee break	Versümer: Low-level sound sources	Elliott: Robust ANC performance	Coffee break
15:40	Maruvada: Freq limits of RFB target	Vardaxis: Modeling acoustic comfort	Procter: Collation and Use of Data	Fuhrmann: Ultrasound Absorption RFB	Zhang: High-speed railway noise	Orita: Active Control of Scattering	Kondoh: Digital micro-laboratory
16:00	Howard: Optical Hydrophone Calibr.	Lawrence: WAM for Urban Soundscapes	Prezelj: Noise immission directivity	Wöckel: Haptic waves	Marki: Mobile app to asses QoL	Alujevic: Synthesis of the Inerter	Cheng: Wave-velocity Dispersion
16:20	Ueberle: Extracorp. Pressure Pulses	Yu: Soundscape Assessment	Dagallier: Travel times in environments	Schmelt: Vibro-tactile displays	Grossarth: Annoyance due to Shooting	Coffee break	Kuznetsova: PZ plate with gasoline
					Interv. stud. 09.1 B (p. 76)	**Noise policy 08 B** (p. 78)	
16:40	Durando: EURAMET EMPIR RaCHy	Engel: Soundscape cost index	Coffee break	Coffee break	Van Renterghem: Noise policy classification	Gallo: Urban social gatherings noise	Coffee break
	Soundscape 21 E (p. 71)		**Animal Bioac. 03 W** (p. 74)				
17:00	Can: RT Noise at peak hours	Jo: Urban Parks	Antoniou: Natural reserve birds traffic	Melde: Acoustic Holograms	Riedel: Civic engagement	Akbulut Coban: Recreational Noise Manag.	Kolesov: SH waves in pz-liquid
17:20	Van Renterghem: Park soundscape	Zhang: Restoration of soundscape	Snaith: Giant Panda Response	Sommerhuber: Mini. laser interferometer	Van Kamp: Soundscape and restoration	Bartalucci: Policies Recreational Noise	Cleve: Microstreaming bubbles
17:40	Akin Güler: Quiet Areas Acoustic	Suhanek: Synthesis of Soundscape-GA			Dohmen: Quantifying health effects	Yan: Revision of GB 50118	Melchor: Nonlinear shear waves

Tuesday, September 10, 2019

	Europa	Brüssel	Berlin 1	Berlin 2	Berlin 3	Lissabon 1	Lissabon 2
	Room acoustics 20 H (p. 166)	**Building acoust. 04 F** (p. 92)	**Building acoust. 04 A** (p. 94)	**Virtual acoust. 27 B** (p. 96)	**Phys., psych. and aud. 18 D** (p. 99)	**Signal processing 02 D** (p. 101)	**Room acoustics 20 C** (p. 103)
08:40	Radun: Effects of office noise	Crispin: Bending stiffness of walls	Whitfield: Heavyweight Construction	Jambrošic: IMU in VR		Kondo: Multi-Array Audio Spotlight	D'Antonio: Coefficient Measurements
09:00	Dickschen: Comparison test procedures	Morandi: Flexural Wavenumbers	Van Hoorickx: Sound Transm. Modeling	Autio: Attention-Guided Algorithm	Encke: Likelihood based IPD decoder	Mori: Thermal Runaway Control	Ballestero: 3D Printed QR-Metadiffuser
09:20	Steps: Coping sound in office	Santoni: Structure characterisation	Decraene: Sound transmission modelling	Lehtiniemi: Music experiences in AR	Picinali: Impact HRTF on SRT	Sayama: Resonance Control	Jiménez: Meta diffusers
09:40	Bouwhuis: Liveliness as design tool	Conta: Reverb. time Woodsol	Van den Wyngaert: Material distribution	Cuevas-Rodriguez: Effect of HMD on HRTF	Danes: Information-based localization	Fujii: Demodul. Distance Control	Romero García: Subwavelength absorbers
10:00	Müller-Trapet: Metrics for Speech Privacy	Coffee break	Opiela: Modelling of 3D-printed foams	Arend: Grids for HRTF Upsampling	Coffee break	Geng: Development Multi-way PAL	Arvidsson: Diffusers in public rooms
10:20	Coffee break	Miller: Viscoelastic Material Analysis	Coffee break	Steffens: Perception of Directivity	Klug: Model of Binaural Perception	Melon: Design of a directive source	Coffee break
			04 D struct.-borne (p. 95)				
10:40	Loh: Open-plan offices	Bailhache: Indirect impact sound	Gibbs: Single rig two stage method	Jot: Criteria for MR Audio	Baumgartner: Predicting Externalization	Zotter: Spherical loudsp. arrays	Shtrepi: Diffusive surface design
				Vehicle ac. 10 G (p. 97)			
11:00	Harvie-Clark: ABW Office Design	Golden: Pred. Heavy Weight Drops	Schöpfer: Single reception plate method	Schwab: Conversion of subtracks	Sakamoto: Auditory spatial attention	Kakuzaki: MCA by Frame Array	Redondo: MO optimiz. Sound diffusers
11:20	Renz: Predicting work performance	Rajmane: Elast. Isolation Ac. Chambers	Reinhold: Time-Varying Sources	Sparrow: SonicBAT Highlights	Pastore: Precedence model	Ito: Spatial Active Noise Control	Bidondo: Room acoustic texture

Europa

11:45 **Keynote Lecture Shrikanth Narayanan**

"Sounds of the human vocal instrument" (see p. 58)

12:30 **Lunch Break**

	Amsterdam	K3	K4	K5	K6	K7/K8	K9
	Electro-acoust. 12 C (p. 105)	**Philosophy 06 C** (p. 108)	**Phys., psych. and aud. 18 F** (p. 109)	**Flow acoustics 13 B** (p. 111)	**Health effects 09.1 C** (p. 114)	**Environment. sound 11 E** (p. 117)	**Physical acoust. 17 C** (p. 118)
08:40	Doclo: Acoustic transparency	Haverkamp: Qualia Problem	Seeber: ITD coding cochlear implants	Weitz: Aeroacoustics of Phonation	Schäffer: Wind turbine noise annoyance	Pieren: Aircraft Flyover Auralisation	Sun: Fan Flutter and Imp. Wall
09:00	Ding: Tone Perception CI Children	Ebner: Speech recogn. and society	Vickers: AMCI-eACC for CIs	Probst: Acoustics of the vocal tract	Marini: Wind Turbines / Low Freq.	Aalmoes: Urban Auralization	Wang: Fluid-Structure-Acoustics
09:20	Unoki: Urgency perception by speech	Gatt: The inner voice	Goehring: Spectral Blurring in CIs	Blandin: Voice directivity	Hansen: AM prevalence in WFN	Maillard: Railway noise auralization	Yang: Unbaffled Long Enclosure
		Soundscape 21 B (p. 108)					
09:40	Zheng: Restore lost speech comp.	Kang: Soundscape indices	Nogueira: Binaural Cochlear Implants	Arnela: FE simulation of /asa/	Ishitake: Health effect of wind turbine	Larsson: Auralization of Train Noise	Riedel: Wind Noise in Hearing Aids
10:00	Coffee break	Ong: Prediction models of levels	Coffee break	Laprie: Glottal opening measurem.	Yokoyama: Perception of LF Components	Coffee break	Ramadan: Flow at the end of regenerator
							17 E holes a. damp. (p. 119)
10:20	Guan: Emotion Recognition Children	Hong: AR Soundscape Evaluation	Kan: SRM with TLE in bilateral CIs	Oren: Intraglottal vortices	Coffee break	Thorsson: Wind Turbine Sound Synth.	Vishwakarma: Intrinsic thermo-acoustic
10:40	Lai: Sound Event Detection	Coffee break	Zirn: Temporal compens. in CI/HA	Kniesburges: Modeling vocal fold posture	Joost: Pure-tone infrasound	Southern: Approaches to Auralisation	Gaudron: Acoustic absorption of holes
				13 C fan noise (p. 112)			
11:00	Soares: Maximum Meas. Uncertainty	Hidayah: Train Soundscape	Polonenko: Bimodal Hearing in Children	Alavi Moghadam: Fan Source Localization	Morinaga: Oppressive / vibratory to LFN	Finne: Environmental Auralisations	Bourquard: T-junction aeroacoustics
11:20	Peng: Word and sentence recogn.	Hapsari: Activities / human perception		Sasaki: Prediction of Fan Noise	Van den Berg: Effect of a LF noise CD	Takumi: Audiovisual simulation method	Boakes: Aeroacoustic scattering

Tuesday, September 10, 2019 (continued)

	Europa	Brüssel	Berlin 1	Berlin 2	Berlin 3	Lissabon 1	Lissabon 2
	Room acoustics 20 H (p. 166)	**Building acoust. 04 F** (p. 92)	**Building acoust. 04 D** (p. 95)	**Vehicle acoust. 10 G** (p. 97)	**Phys., psych. and aud. 18 D** (p. 99)	**Signal processing 02 D** (p. 101)	**Room acoustics 20 C** (p. 103)
14:00	Lenne: Meas. of D2S index	Nash: Qualific. Anechoic Chamber	Hoßfeld: Reception plate	Merino-Martinez: Improve aircraft noise models	Geronazzo: Evaluating HRTF models	Møller: Automotive in situ beamform.	Nolan: Isotropy in reverberant fields
14:20	Renz: Screens and level differences	Toru: Ensemble Averaging	Hirao: Contribution of air handler	Rossikhin: Booster Stage Tone Noise	Westhausen: Binaural Speaker Separation	Andersson: Acoustical Levitation Traps	Nakanishi: Absorption of Thin Resonator
				10 F (p. 98)			**20 D** (p. 104)
14:40	Wenmaekers: Furniture and office acoustics	Sakuma: Oblique-incidence absorption	Shen: Heavy Impact on Timber Floor	Kropp: Curve Squeal Abatement	Vicente: Speech Intelligibility Model	Abhayapala: Soundfield reproduction DNN	Martellotta: Santiago Cathedral
15:00	Yadav: Variability in ISO 3382-3	Lawanwadeekul: Clay Bricks Absorption	Schöpfer: Transmission functions	Maly: Influences on Curve Squeal	Lindenbeck: Binaural SIPI CI Paradigm	Hahn: Time Domain Local WFS	Alvarez-Morales: Ripon cathedral acoustics
15:20	Maeder: STI mapping Ray-Tracing	Hoshi: Impedance Measurement	Coffee break	Fehndrich: Damped Freight Wheel	Giurda: Algorithm evaluation VSE	Ren: Distance and Radius 2CLAs	Carvalho: Portuguese Roman. churches
15:40	Poster Forum 1st floor foyer	Poster Forum	Poster Forum	Poster Forum	Poster Forum	Poster Forum	Poster Forum
16:00	Poster Forum 1st floor foyer	Poster Forum	Poster Forum	Poster Forum	Poster Forum	Poster Forum	Poster Forum
			16 C (p. 96)				
16:20	D'Orazio: Noise sources in offices	Hanyu: Measuring particle velocity	Dance: Face the Music, 12 y. study	Graf: Railroad Sources using Array	Altinsoy: Virtual textiles	Goebel: High-Res Modular Array	Valiere: Abbaye des Anges
16:40	Mueller: ANC in Open Space Offices	Samarasinghe: Airflow Resistance Meas.	Pietrzak: Musicians' exposure to sound	Mortensen: Rail roughness surveys	Reyes-Lecuona: 3D Tune-In Toolkit	Shabalina: Field-Matching Method SFS	Su Gul: Hagia Sophia / Süleymaniye
		04 H (p. 94)		**22 W** (p. 98)	**18 L** (p. 100)		
17:00	Liebl: Reduction of vocal effort	Wittstock: Absorbers from renewables	Wenmaekers: Orchestra exposure measures	Van Dijk: Practice meets theory	Lim: Incidental Sound Learning	Stein: Adjoint Sound	Boren: Thomaskirche Acoustics
17:20	Schlittmeier: Labeling and evaluation	Bietz: Dynamic Stiffness Meas.	Miura: Dicrimi-nationability	Giglio: AI in Acoustic Design	Engineer: Training-induced plasticity	Brunskog: Outdoor concert adapt. sound	Malecki: Wooden Churches
17:40	Hongisto: Water-based masking	Mecking: Renewables in prediction	Schlesinger: Exposure level workplace		Tierney: Selective attention training	Heuchel: Adapting TFs for outdoor	Rovigatti: Acoustics of Pisa Baptistery

19:00 **Organ Concert in Aachen Cathedral (Dom)** (see p. 52)

	Amsterdam	K3	K4	K5	K6	K7/K8	K9
	Numerical acoust. 15 B (p. 106)	**Soundscape 21 B** (p. 108)	**Underwater acoust. 14 B** (p. 110)	**Flow acoustics 13 C** (p. 112)	**Health effects 09.1 C** (p. 114)	**Environment. sound 11 E** (p. 117)	**Physical acoust. 17 E** (p. 119)
14:00	Kronowetter: Uncertain meta-atoms	Jia: Soundscapes characteristics	Stöber: Moving Sources and Receivers	Piepiorka: Splitting incl. rotat. domains	Rajala: Loudness of infrasound	Fu: Traffic Flow Auralisation	Na: Tube rows with Bias flow
14:20	Yu: STL of metamaterial grating	Seo: Environment-based Evaluation	Kirby: Sound in Shallow Water	Dogan: Vortex sound based comp.	Nishimura: Infrasound Monitoring Device	Stienen: Region filtering auralization	Li: Impedance of ultrathin MPPs
14:40	Fusaro: AMM window improvement	Xavier Rego: Characterization urban sound	Lee: 3D PE based on GPU	Czwielong: Leading Edge / Axial Fans	Yamamoto: Infrasound research at KUT	Muhammad: Building Noise Auralization	Yang: Entropy sound of short holes
					09.1 F (p. 115)	**11 D** (p. 118)	**17 D** (p. 120)
15:00	Komito: Prediction of sound absorber	Laib: AVAS and urban soundscape	Aslan: Parabolic Equation Model	Lucius: Fan noise in heat pumps	Quehl: Noise annoyance in children	Probst: Quality Assurance CNOSSOS	Sheng: Acoustic Metamaterials
15:20	Gaborit: Envelope Estim. for Screens	Lei: Soundscape Identification	Xiao: OpenMP Parallelization	Zurbano-Fernandez: LE serrations on plug fan	Weidenfeld: Road Traffic Annoyance	Lesieur: Metamodeling noise mapping	Groby: Straw inspired metafluid
15:40	Petrosino: Corrugated surfaces	Poster Forum	Poster Forum	Poster Forum	Poster Forum	Poster Forum	Poster Forum
16:00	Inoue: FEA on acoust. resonators	Poster Forum	Poster Forum	Poster Forum	Poster Forum	Poster Forum	Poster Forum
	24 C (p. 107)	Science CP					
16:20	Li: Vibro-ac. Behavior of Plates	Science Communication Panel	Abshagen: Sound propagation exper.	Schoder: CAA of an Axial Fan	Yagawa: Railway Annoyance	Aumond: Sensitivity analysis	Jaouen: Challenges of metamaterials
16:40	Yang: Elastic mode conversion	Science Communication Panel	Avsic: Reduced Backscatter Shape	Liberson: Ventilator Noise Simulation	Haubrich: Expos.-response relationships	Hiraguri: Estimating dose-response	Gorain: TL of HR embedded material
17:00	Dong: Acoustics NDT	Science Communication Panel	Liu: Development of Transducers	Gostiša: Centrifugal fan aeroacoustics	Spilski: Different noise metrics	Brezas: Sound power uncertainty	Vazquez Torre: Model 2DOF Metamaterial
					09.2 C (p. 116)		
17:20	Nieto Diaz: Corona detection and monit.	Science Communication Panel	Fang: Displacement Amplification	Schaefer: LBM Sim. of Centrifugal Fan	Baudin: Noise and saliva cortisol		Christensen: Topological bound states
17:40	Binek: SPL Reduction WFI ATHENA	Science Communication Panel	Wang: Ship Localization CNN	Huang: Multi-blade Centrifugal Fan	Vienneau: Meta-analysis IHD diabetes		Zangeneh-Nejad: Topological Fano Reson.

Posters on Tuesday, 10 September

Location: 1st floor foyer
Poster Forum: 15:40 - 16:20

Topic 02: Audio signal processing (p. 80)			**Topic 03: Animal Bioacoustics** (p. 84)	**Topic 04: Building acoustics** (p. 84)
Aoki: Parametric speakers	Krini: Spectral Refinement	Schultz: Compressive Sensing	Abbasi: Classif. USVs by CNNs	Briere De La Hoss.: Time-Domain Boundary Cond.
Batke: Arrays for recording music	Kung: Speech Detec. Enhancement	Shindo: Noise-reduc. Sound Capture	Heuer: Birdsong Recognition	Fausti: Italian acoustic regulations
Briegleb: DC Ego-Noise Suppression	Kusano: Nearly Tight Window	Takane: HRTFs synth. with SPCA	Laaß: Origin of tympanic hearing	Marin: Absorber activated carbon
Chen: Max. Directivity Beamformer	Li: Voice activity detection	Terano: Sound Capture from Camera		Mijic: Speech privacy and insulation
Drakopoulos: Real-time DNNs Raspberry Pi	Liang: Direction Search Algorithm	Tsunokuni: Synthesis equiv. source array		Nishimura: Ac. Performance of Units
Fabry: Meas. ANC Headphones	Magome: SVM Screening Battery	Wang: Kronecker Prod. Beamformers	**Topic 14: Under-water acoustics B** (p. 89)	Olshausen: The new Munch museum
Günther: Microphone Utility Features	Makishima: Column-Wise Update IDLMA	Wang: Impulse source localization	Wu: DOA Estimation	Rychtarikova: Value of sound insulation
Hakamata: Audible Spot Forming	Mizumachi: NN Broadband Beamformer	Yamaguchi: Detection Boat Noise CNN		Scoczynski Ribeiro: Wooden panels properties
Hiruma: Detection of clean TF bins	Radionova: Acoustic Sensor for Irrigation	Yasueda: Optimal Sound Control by LS		Takumasa: Absorption of granules
Imaeda: Estimating sound intensity	Rajbamshi: Reassigned TFR Inversion	Zhao: Detection of Moving Target		Vargic: Historical monuments
Ito: Transaural with Beamformings	Sarradj: Array Processing Methods	Zhao: Asymmetric Beampatterns		Wang: Cellular automata modeling
Kim: Data Augment ASC method	Satoru: GaP-NMF and DNN	Zhu: Reducing TF Measurement		

Topic 09: Health effects (p. 85)	**Topic 12: Electro-acoustics** (p. 86)		**Topic 13: Flow acoustics** (p. 88)	**Topic 15: Numerical acoustics** (p. 89)
Benz: Aircr. Noise and Depression	Jasinski: Var. HRTFs across subjects	Roden: Earpiece optim. using FEM	Aichinger: Noise in breathy voice	Bachmann: Open-source wave solver
Bleichner: Ear-EEG for noise perception	Kakeru: Dyn. LSFS with 1-bit signal	Shi: Constant Beamwidth PAL	Eisenmenger: Inverse design method on fans	Dogan: New local integral eq. method
Burke: Unpleasantness infrasound	Kong: Reverb. cochlear implants	Takahashi: Intelligibility Estimation	Hruska: Sound from a sonic crystal	Liu: Tire Non-uniformity Vibration
Fong: Non-restorative sleep	Li: SCE with prior SNR	Takane: Complex logarithms HRTFs	Schlegel: Voice Parameter Comparison	Mellmann: Band-gap calculation via SEM
Hansell: Ultrafine particles and noise	Miyaoka: Current Noise and Distortion	Takeoka: Quantization method array	Kaneko: Noise Pred. Direct CAA	Mohamady: Nonlinearities in TPA
Morihara: high-speed railway	Nakazawa: De-reverberation using CNN	Zhang: Scattering Effects Control	Kopania: Noise of Airfoils	Piscoya: Complex multipoles
Nagamatsu: Turbine infrasound evaluation	Nishimura: Robust aerial watermarking	Zhang: Quality of Enhanced Speech	Qiao: Study on BTI Noise Reduction	Saati: Inverse Characteriz. Porous
Zajamsek: Effect of noise on PWA			Schroeder: Aerofoil trailing noise reduct	Sun: Stochastic Rotor Dynamics
				Suo: Matrix and Detect. Sensitivity
				Thaminni Ramamoorthy: Opt. Multilayered Abs.

Wednesday, September 11, 2019

	Europa	Brüssel	Berlin 1	Berlin 2	Berlin 3	Lissabon 1	Lissabon 2
	Room acoustics 20 M (p. 132)	**Building acoust. 04 H** (p. 133)	**Building acoust. 04 K** (p. 135)	**Room acoustics 20 F** (p. 137)	**Phys., psych. and aud. 18 H** (p. 138)	**Signal processing 02 B** (p. 140)	**Room acoustics 20 D** (p. 142)
08:40	Bottalico: Voice and Noise Dosimetry	Rubino: Absorbers textile wastes	Scrosati: Facade insulation protection		Tye-Murray: Audiovisual speech integration	Brendel: Distance Estimation	Basso: The Colon as a Double Hall
09:00	Di Blasio: Noise generated by pupils	Gunawan: Woven fabric	Di Nocco: Ventilated facades	Vercammen: Revision of ISO 354	Meister: Audiovisual speech perception	Zohourian: Speaker Distance Estimation	Fidecki: Assessment of a concert hall
09:20	Anand: Noise and Vocal Function	Kong: Absorption of Honeycomb	Glebe: Auralization of Coincidence	Scrosati: Principles RRT Reverb Rooms	Irwin: AV speech in ASD	Beit-On: Binaural Direction-of-Arrival	Tavares: Acoustical Conservation
09:40	Lyberg-Åhlander: Communic. and Learning	Mazzarella: Case study Snooze Panel	Cheung: Better Plenum Window Design	Wittstock: Reference absorber	Grimm: Audio-visual stimuli	Olgun: DPD-test Threshold Selection	Pedrero: Holistic Heritage Buildings
10:00	Coffee break	Attal: Absorption by green walls	Deganyar: Fenestration Systems	Balint: Effect of absorber placement	Ahrens: AV scene analysis	Muñoz Montoro: Source Loc. using CNMF	Pop: Acoustics of Heritage Halls
						Spatial a. 02 F (p. 141)	
10:20	Signoret: Semantics and speech prod.	Coffee break	Harvie-Clark: Noise Ventilation Overheating	Massarani: Diffuse Absorption 2 Mics	Berthomieu: Loudness of distant sources	Brandenburg: Perceptual Aspects	Coffee break
		Low fr. 04 G (p. 134)					
10:40	Verduyckt: Restorative spaces in schools	Guigou-Carter: Railways ground-borne noise	Körper: Varieties of outdoor noise	D'Antonio: New Reverberation Chamber	Schutte: Virtual rattlesnake acoustics	Remaggi: Perceived Reverberation in VR	Barbo: Art Museum of Sao Paulo
					Multis. pr. 18 K (p. 139)	**Signal pr. 02 G** (p. 141)	
11:00	Noguchi: Preschool sound environment	Jean: Ground borne noise rail	Harvie-Clark: Acoustic vents noisy sites	Nolan: Decaying reverberant field	Zhou: Multisensory reaction times	Wellershoff: Gabor phase retrieval	Fagerlande: Gonzaga Theater in Rio
11:20	Elmehdi: Acoustic Quality University	Masuda: Diffuse-Field Correction	Chan: Baffle Type Window	Berzborn: Directional Decay Curves	Maddox: Relatively Speaking	Holighaus: Phase-Magnitude Relations	Alic: Turkish Mosque Acoustics

Europa

11:45 **Keynote Lecture Christopher Wiebusch and Tim Otto Roth**
"Astroparticle Immersive Synthesizer^3 or how cosmic 'ghost particles' inspire a novel concept of spatialisation of sound" (see p. 58)

12:30 **Lunch Break**

	Amsterdam	K3	K4	K5	K6	K7/K8	K9
	Struct.-borne sound 24 B (p. 144)	**Soundscape 21 O** (p. 145)	**Noise + vibr. policy 08 K** (p. 147)	**Vehicle acoust. 10 D** (p. 149)	**Health effects 09.1 G** (p. 151)	**Environment. sound 11 B** (p. 153)	**Active acoust. systems 01 B** (p. 154)
08:40	Van der Aa: Vibration Accel. HV-GCR	Czopek: Unique Arctic Soundscape	Kok: Refinement of Cnossos	Sakamoto: ASJ RTN 2018: Outline	Yokoshima: Combined noise annoyance	Thorsson: Wind Turbine Facade Insul.	Alujevic: Skyhook Damper for ASAC
09:00	Jung: Incr. Radiation Efficiency	Farina: Art-soundscapes project	Peeters: Electr. vehicle noise emission	Okada: ASJ RTN 2018: Emission	Hayashi: Evaluation Building Vibration	Sasaki: Broadband Noise of HWAT	Chesne: Hybrid Mass Damper
		S. trends 21 N (p. 146)				**Outdoor s. 11 A** (p. 153)	
09:20	Takeshima: Simulation of granules	Chung: Immersive VR Sound Planning	Anfosso Ledee: Road surface corrections	Fukushima: ASJ RTN 2018: Propagation	Matsumoto: Building vibration annoyance	Wunderli: Forest Reflections	Loheide: Active Engine Mount
09:40	Cordioli: DLF highly damped structure	Calleri: Design for quiet living	Weinandy: CNOSSOS-EU in Germany	Anai: ASJ RTN 2018: Buildings	Van Kempen: Railway noise and vibrations	Pagán Muñoz: Urban diffusion coefficients	Balzer: Fuzzy Controller Optimization
10:00	Adams: Similitude of plates	Coffee break	De Leon: Cnossos road noise in Italy	Coffee break	Nguyen: Public health and reactions	Wilson: Wide-angle moving med. PE	Coffee break
		Indoor s. 21 F (p. 146)					
10:20	Altinsoy: Electric motor test bench	Milo: Spaces / soundscape design	Pallas: Medium-heavy vehicle noise	Yamauchi: ASJ RTN 2018: Accuracy	Coffee break	Fenlon: Uncertainty Environm. Sound	Rohlfing: Active resonator silencers
					09.2 B (p. 152)		
10:40	Van Ophem: Virtual acoustic sensing	Ercakmak: Indoor soundscape method.	Shilton: CNOSSOS-EU in Nis, Serbia	Del Pizzo: Tyre/road Noise Modelling	Loh: ASA in children and adults	Bartolomaeus: Test Stand Ac. Scattering	Wang: Applying ANC on apertures
			EPA-N. IGNA 08 H (p. 148)				
11:00	Nieradka: Weld Type in SEA	Thomas: Indoor kitchen soundscape	Walker: EPA-Network Interest Group	Peng: Predicted truck noise	Klatte: Irrelevant Speech Effect	Taherzadeh: Propagation of surface waves	
11:20	Gröhlich: Viscoelastic vibr. damping	Yang: Sequential Space	Weinandy: Traffic Noise Abatement	Estercio: Prediction of traffic noise	Schlittmeier: Spatial sounds and memory	Cheinet: Outdoor transfer functions	

Wednesday, September 11, 2019 (continued)

	Europa	Brüssel	Berlin 1	Berlin 2	Berlin 3	Lissabon 1	Lissabon 2
	Room acoustics 20 M (p. 132)	**Building acoust. 04 G** (p. 134)	**Phys., psych. and aud. 18 C** (p. 136)	**Room acoustics 20 F** (p. 137)	**Phys., psych. and aud. 18 K** (p. 139)	**Signal processing 02 B** (p. 141)	**Phys., psych. and aud. 18 N** (p. 143)
14:00	Korany: Speaker Identification	Woolworth: Low frequency sound testing	Sanchez-Lopez: Clinical Test Battery BEAR	Qiu: Reverber. Room of UTS	Bruns: Decay Spatial Recalibration	Lopez: Lowcost acoustic cameras	Noyce: Audition in frontal cortex
14:20	Ternström: Voice Variability	Liu: Facade Sound Insulation	Wu: Hearing aid evaluation	Shtrepi: Scaled reverberation rooms	Park: Multisensory recalibration	Schymura: Audiovisual Speaker Tracking	Billig: Spectral parcellation
	Education 05 W (p. 133)						
14:40	Petrosino: Teaching aid software	Boganik: Sound insulation panels	Kramer: Objective Prediction Models	Davy: Sound Absorp. of Long Holes	Van Wassenhove: Multisensory inference	Salvati: Active speaker localization	Norman-Haignere: Neural timescales
15:00	Oltersdorf: Information Retrieval	Mastino: Noise from plants systems	Jensen: Personalising Hearing Aids	D'Orazio: Low frequency measurements	Bizley: Role of seeing in ASA	Sun: Impact Point Positioning	Shiell: Spatial processing cortex
15:20	Poster Forum	Poster Forum	Pontoppidan: Behavior with hearing aids	Magalotti: FEM Models Decay Time	Von Kriegstein: Auditory communication	Poster Forum	Monson: Maturation of Auditory Cortex
15:40	Poster Forum	Poster Forum	Holube: Hearing aids and everyday life	Martellotta: GA models to measure alpha	Degano: Audiovisual speech in ageing	Poster Forum	Dick: Auditory Map Variability

16:00 **ICA General Assembly** (Brüssel, see p. 46)

19:00 **Social Evening at "Ludwig Forum" for all participants** (see p. 53)

	Amsterdam	K3	K4	K5	K6	K7/K8	K9
	Struct.-borne sound 24 G (p. 145)	**Soundscape 21 F** (p. 146)	**Noise + vibr. policy 08 H** (p. 148)	**Underwater acoust.14 A** (p. 150)	**Health effects 09.2 A** (p. 152)	**Environment. sound 11 A** (p. 153)	**Animal Bio-acoust. 03 A** (p. 155)
14:00	Laroche: Hand-arm Vibrations Eval.	Devos: Healthy Environments	Mihalcik: Road Traffic Noise Annoyance	Dong: Extraction of Dispersion	Basner: ATL Pilot Sleep Study	Oshima: ASJ / Harmonoise comparison	Balazs: Frame Theory and Psychoac.
14:20	Scholz: Influencing Parameters HAV	Dedieu: Comfort in residential context	Nusselder: Noise limits in Europe	Potty: Geoacoustic inversion	Bartels: Noise and childhood sleep	Procter: Managing the Uncertainty	Gerhard: HRTF based Localization
							Ev. ear 03 B (p. 155)
14:40	Delcor: Helicopter comfort perception	Maruyama: Comfort conversation in cafe	Peris: Quiet Areas in Europe	Skarsoulis: Underwater Localization	Hongisto: Noise spectrum and sleep	Curovic: Facade correction using array	Christensen-Dalsgaard: Hear. without middle ears
15:00	Arifianto: Transfer Path Analysis	Gök Tokgöz: Industrial Soundscape	Dolan: Noise Advocacy	Dosso: Bayesian Geoac. Inversion	Smith: Traffic noise and sleep depth	Dragna: Bird Vocalizations	Schulz-Mirbach: Teleost Otolith Evolution
15:20	Poster Forum	Ge: Natural sound / depression	Boegli: Trends in noise abatement	Poster Forum	Brink: Selfreported sleep disturbance	Hörmeyer: Atmospheric sound propag.	Poster Forum
15:40	Poster Forum	Sudarsono: Hospital soundsc. dimensions	Poster Forum	Poster Forum	Poster Forum	Poster Forum	Poster Forum

Posters on Wednesday, 11 September

Location: 1st floor foyer
Poster Forum: 15:20 - 16:00

Topic 01: Active acoust. systems (p. 121)	**Topic 05: Education** (p. 122)	**Topic 08: Noise + vibr. policy** (p. 122)	**Topic 10: Vehicle acoustics** (p. 122)	**Topic 11: Environmental sound** (p. 123)	**Topic 14: Underwater acoustics** (p. 124)	**Topic 17: Physical acoustics** (p. 124)
Fukatsu: IIR Filter of Boat Noise ANC	Jaruszewska: Acoucou Platform	Mok: Construction noise Hong Kong	Bayani: Temperature variation rattle	Bertagnolio: Wind Turbine LFNoise	Bibikov: Snapping shrimps	Dell: Nested Helmholtz Resonators
Lesoinne: Numerical design of ANC			Linda: In-vehicle sound field	Cui: Observation of Infrasound	Hong: Thickness measuring of CRC	Li: Monostable MAM
Liebich: Acoustic Path database ANC			Tsokaktsidis: Machine learned noise transfer	Forssen: Including quiet side in noise	Ogasawara: Characteristics at Sea Bottom	Li: Pyramid Sandwich Structure
Lumpert: Nonlin. in Sound Field Control			Wang: Sound field reprod. cabin	Haan: Noise calculation of roads	Yang: Time Structures of EGFs	Ma: Elastic Surface / Edge Modes
Mao: Frequency Independent ARMs				Kataoka: Handy microphone movement		
Patricio: Practices Portugal Railway				Mellert: Immission meas. wind turbine		
Zhu: Control of coupled enclosure				Murovec: Spatial filtering of noise		
				Xavier: Urban canyon noise		

Topic 20: Room acoustics (p. 125)			**Topic 24: Structure-borne sound** (p. 128)	**Topic 25: Ultrasound** (p. 130)		**Topic 27: Virtual Acoustics** (p. 131)
Alves: Simulation classrooms	De Avelar Gomes: Crossover Freq. Estim.	Zapata-Rodriguez: Audiometry rooms	Abi Raad: Ultrasonic metal welding	Allevato: 3D Ultrasound Imaging	Oishi: Ultrasonic complex vibration	Kurabayashi: Moving sound image
Atara Piraquive: Training professors	Hiraoka: Audio-visual Mutual Effect	Shamoto: Reverb. / working memory	Garnell: Dielectric elastomer speaker	Ankay: 3-D Nonlinear Elas-todynamics	Porter: Intracranial focal ablation	Stienen: Virtual Acoustics framework
Barbosa De Sa: Laminated Bamboo Panels	Kohase: Spectral Method	Tang: Cases Comparison	Golzari: Sound transmission loss	Asami: Cylindrical ultrasonic source	Ramis: Corrosion in Concrete	Urbanietz: Binaural Sounds in Motion
Brandao: Ray tracing algorithm	Kröger: Singer's formant	Teraoka: Sound Field Evaluation	Hassoun: Noise from diesel power group	Di Battista: 40 kHz Exposure Effects	Shapovalov: Speed of sound in solids	Voong: Determining HRTF for BCHs
Cantor-Cutiva: Brain activity and voice	Cox: Fluttering Reverberance	Terashima: HMD VR Display	Iwabuki: Numerical Analysis of Noise	Hidenobu: Ultrasonic washing	Yamashita: Non-contact Thickn. Gauging	Pörschmann: Individual HRTF Upsampling
Cantor-Cutiva: Brain, emotions and singing	Nowicka: Commercial buildings	Tokunaga: Discrimination of IR	Jia: Condition monitoring with TF	Kaczmarek: Magneto-ultrasonic heating		
Carullo: Emotions and Voice	Okamoto: In-situ absorption meas.	Uehara: Acoustic Mapping by Robot	Le: Piecewise Bilinear Charact.	Kobayashi: PCR by vibration		
Carullo: Obj. Assessment of SOVTE	Petraglia: Reverberation Time Estimation	Winroth: Differences preschool acoust.	Netzband: STI: Injection-moulded parts	Kuroyama: Acoustic cavitation oscillation		
Christia: Drinking Straws as Absorber	Piffer: Correction response ice arena	Zielinski: Absorp. 3D-printed Media	Norambuena: Adaptive struct. excitation	Liu: Study on Restoring Force		
	Beldam: Operation Rooms		Takahashi: Resonant freq. monitoring	Motoi: Ultrasonic agglutination		
			Tang: Vibration control			
			Zhang: Propeller vibration			
			Zhang: Thrust bearing isolation			

Thursday, September 12, 2019

	Europa	Brüssel	Berlin 1	Berlin 2	Berlin 3	Lissabon 1	Lissabon 2
	Room acoustics 20 G (p. 166)	**Musical ac. 16 W** (p. 168)	**Building acoust. 04 C** (p. 170)	**Virtual acoust. 27 C** (p. 171)	**Phys., psych. and aud. 18 M** (p. 174)	**Signal processing 02 W** (p. 176)	**Room acoustics 20 P** (p. 178)
08:40	Jaramillo: Classroom Redesign	Onwubiko: Spectral Analysis of the Ikoro	Jeongho: Survey method of rubber ball	Hornikx: SH-based BRIR reconstruct.	Linden: Theory of Gap Detection	Witew: Uncertainty impulse response	Schäfer: Sens. analysis hybrid sim.
09:00	De Salvio: SNR university classrooms	Calilhanna: Ikorodo Music Analysis	Donohue: Rain Noise	Bilbao: Directional Source Modeling	Landemard: Statistics of Sounds in Cortex	Boonen: Kundt tube transfer matrix	Shtrepi: Wave-based simulation
09:20	Lubman: Sound absorbing ceilings	Yasui: Procedure for arranging score	Dong: High-frequency impact noise	Tenenbaum: Fast technique f. auralization	Skerritt-Davis: Model Statistics Processing	Bradley: Ultrasonic Sensing Agriculture	D'Orazio: Italian Opera Houses
09:40	Zahorik: Adaptation to Room Acoustics	Takahashi: Role of foot of organ pipes	Simmons: Sound insulation Field Surveys	Du: Exterior field cancellation	McWalter: Auditory Statist. Estimation	Fonseca: Open Source Toolbox	Mondet: Image-Equiv. Source Method
10:00	Coffee Break	Iwagami: Mode Transition of Edge Tone	Coffee break	Aspöck: Auralization of many sources	Coffee break	Nussbaumer: Stethoscope Acoustics	Coffee break
10:20	Jarosz: Acoustic treatment of school	Bottalico: Pitch Accuracy	Rasmussen: Neighbour noise annoyance	Pulkki: Neural network rendering	Thomassen: Auditory fore- and background	Mazza: Traffic Noise Prediction	Tricanico: FDTD in Voice Booths
						Micr. 02 A (p. 176)	
10:40	Takala: Open plan school meas.	Coffee break	Pozzer: Noises in your residence	Heimes: Building Acoustic Auralization	Malmierca: Auditory Predictive Coding	Hargreaves: Acq. of BDRFs by NFAH	Prislan: RTS for curved boundaries
		04 L (p. 169)					
11:00	Astolfi: Well-being and acoustics	Dong: Mod. impact testing method	Kulak: Acoustic Quality Classes	Nykänen: Environmental Noise in VR	Escera: Factors driving predictions	Masiero: Sparse blind deconvolution	Meacham: Energy-Stress Freq. Validity
11:20	Noguchi: Preschool sound environment	Stange-Kölling: Round robin tapping machine	Sentop: Subjective Evaluation	Xu: Simplify Virtual Soundscapes	Todd: Nested sound patterns	Zea: Multi-scale RIR interpolation	Su Gul: Diffusion equation modeling

Europa

11:45 **Keynote Lecture Jeremie Voix**
"The ear at the age of IoT" (see p. 58)

12:30 **Lunch Break**

	Amsterdam	K3	K4	K5	K6	K7/K8	K9
	Struct.-borne sound 24 A (p. 179)	**Soundscape 21 A** (p. 181)	**Vehicle acoust. 10 C** (p. 184)	**Underwater acoust. 14 A** (p. 186)	**Musical Acoust. 16 A** (p. 188)	**Psychoacoustics 19 W** (p. 190)	**Physical acoust. 17 D** (p. 192)
08:40	Doaré: Radiation of piezo plates	Schulte-Fortkamp: Soundscape and Perception	Chang: Evaluation of Sound Zones	Smaragdakis: Characterization via HMMs	Siedenburg: Role of onsets	Pulvirenti: Simulation vs. Perception	Haberman: Non-reciprocity via modulation
09:00	Nielsen: Optimization of Loudspeakers	Fiebig: Standardized data collection	Nykänen: Sounds for Energy Efficiency	Seokjin: NMF-based Target Detection	Saitis: Timbral Brightness Perception	Oetjen: Complex-shaped envelopes	Melnikov: Insulation using Metaatoms
09:20	Zhao: Topology optimiz. with NNI	Nagahata: Analysis soundwalk data	Cho: Transfer function in a vehicle	Katsnelson: Bottom parameters estimation	Ducceschi: Conservative Schemes	Kritly: Audibility of Spectral Dips	Sánchez-Dehesa: Vib. control by metamaterials
09:40	Klages: Shape opt. impact hammer	Tassia: Ac. Environment Simulator	Coffee break	Jung: Beampattern measurement	Schmutzhard: Simulation of transients	Sato: Multi-talker Broadcasting	Singleton: Broadband Metamat. Design
10:00	Yoon: Repeated eigenvalues	Sun: Classif. urban soundscapes	Pu: Design gear sound	Coffee break	Coffee break	Abe: Body Vibration and Reality	Coffee break
						Bin. Ps. 19 B (p. 191)	
10:20	Coffee break	Coffee break	Cha: Driving Sound Design	Coffee break	Lopez-Carromero: Trombone slide glissandi	Grosse: Speech in reverberation	Starkey: Surface waves on plates
	24 D (p. 180)		**Flow A. 13 A** (p. 184)	**Flow acoust. 13 D** (p. 186)			
10:40	Picard: Array Deconvolution Methods	Radicchi: Soundscape study New York	Snakowska: Duct-Like System Multiport	Liefvendahl: Leading edge noise	Cottingham: Free Reed Transients	Braasch: Modeling binaural detection	Andersen: Cloak Shape Optimization
							f. comb. 17 F (p. 193)
11:00	Pan: Identifying Multipole Sources	Sudarsono: Headphone soundscape	Van Tricht: Characterization of fan noise	Hieke: Acoustics hubless propeller	Hsu: Sustained Vowel Replacing	Carney: Neural Fluctuation Differences	Weilenmann: BOS of entropy waves
11:20	Kassab: Vibroacoustic beamforming	Yang: Review of Prediction Models	Sack: Non-Linear Multi-Port	Croaker: Semi-analytical plate noise	Coffee break	Dietz: Bandwidth, ITD and BMLD	Senga: Entropy Production of TAE

Thursday, September 12, 2019 (continued)

	Europa	Brüssel	Berlin 1	Berlin 2	Berlin 3	Lissabon 1	Lissabon 2
	Room acoustics 20 G (p. 166)	**Building acoust. 04 L** (p. 169)	**Building acoust. 04 C** (p. 170)	**Electro-acoust. 12 A** (p. 172)	**Phys., psych. and aud. 18 M** (p. 174)	**Signal processing 02 A** (p. 176)	**Room acoustics 20 P** (p. 178)
14:00	Schiller: Children's perception	Kylliäinen: New single-number quantities	Rasmussen: Sound insulation dwellings	Doma: HRTF Meas. Uncertainties	Chait: Patterns in sound	McCormack: HO-processing of spatial IRs	Nilsson: Room Acoustic Energy Model
14:20	Bottalico: Intelligibility of Dysphonia	Wang: Timber joist floor	Schöner: Regulation in hospitals	Zhao: Reduction of HRTFs	Englitz: Textures and Consciousness	Bai: AI for reverberation	Embrechts: Plane Wave Reverb. Model
			18 O (p. 160)		**18 B** (p. 175)		
14:40	Braat-Eggen: Influence of noise on studying	Chmelík: Subjective rating of floors	Posters / Session 18 O	Braren: HRTF Differences in Children	Saiz Alia: Attention in the brainstem	Leng: Binaural Dereverberation	Okuzono: Dispersion Reduced TD-FEM
15:00	Smith: Noise on student achievement	Frescura: Perception of Indoor Noise	Posters / Session 18 O	Xie: Virtual source	Garrett: Speech Intelligibility and EEG	Liu: Dereverberation with DNNs	Steuck: RT60 with BEM and Radiosity
15:20	Prodi: Speech comprehension	Hansol: Influence of suspended ceiling	Posters / Session 18 O	Yi: Local Ambisonics panning	Bendixen: ORN / concurr. segregation	Verburg: Acousto-optic sensing	Weber: Couple Volume Round Robin
15:40	Poster Forum 1st floor foyer	Poster Forum	Poster Forum	Poster Forum	Poster Forum	Poster Forum	Poster Forum
16:00	Poster Forum 1st floor foyer	Poster Forum	Poster Forum	Poster Forum	Poster Forum	Poster Forum	Poster Forum
		04 B (p. 170)					
16:20	Campbell: A measurement case study	Hiramitsu: Impact Sound Wooden House	**UKAN / ITN ENRICH: Careers in industry & academia**	Liu: Transaural reproduction	Ihlefeld: Auditory attention via fNIRS	Berzborn: High Order MEMS Array	Aussal: Open-source room acoustic
16:40	Holmer: Noise and L2 Phonology	Homb: Hybrid joist floors	UKAN / ITN ENRICH (see p. 49)	Yu: Distance localization	Steinmetzger: Speech Melody and NIRS	Jo: Robust localization of echoes	Šimek: Simulation of large hall
17:00	Greenland: Inclusion in Classrooms	Schoenwald: Interlayers at junctions	UKAN / ITN ENRICH	Zheng: 3-D Sound Image Localization	Koops: Tonotopic Maps in Tinnitus	Jung: Localization Error Reduction	Gimperlein: Boundary element methods
17:20	Jeong: Room acoustics for HI	Caniato: Numerical simulation CLT	UKAN / ITN ENRICH	Suzuki: Sound Image Localization	Gummer: DPOAE Optimization	Fernandez-Grande: Sound field reconstr.	
17:40	Takahashi: Comfortable spaces f. ASD	Thies: Dispersion relation in CLT	UKAN / ITN ENRICH	Pausch: Reproduction error metrics	Thiel: Hearing loss and fMRI		
18:00				Houtave: Digital Cinema Sound Levels	Sankowsky-Rothe: Ear imped. infants		

	Amsterdam	K3	K4	K5	K6	K7/K8	K9
	Struct.-borne sound 24 D (p. 180)	**Speech 23 B** (p. 182)	**Flow acoustics 13 A** (p. 184)	**Flow acoustics 13 E** (p. 187)	**Numerical acoust. 15 A** (p. 189)	**Psychoacoustics 19 B** (p. 191)	**Physical acoust. 17 F** (p. 193)
14:00	Dabankah: Blind identification with iPTF	Darcy: Assessing Audio QoE	Faure: LNSE T-Junction	Schroeder: Aerofoil trailing noise reduct	Geweth: Measuring Damping	Kolotzek: Unmasking moving sources	Blondé: Optical FTF Measurements
14:20	Chandra: Damping Identification	Francombe: Evaluation of immersive audio	Liang: Vibration of Valve	Geyer: Flow Fieldy Porous Cylinders	Cordioli: Middle ear uncertainties	Warnecke: Perception of Auditory Motion	Sugimoto: Thermoacoustic oscillations
					15 W (p. 189)		
14:40	Totaro: Selective force identification	Kisic: Listening Test Spatial Stimuli	Wang: Low Mach Number	Mayer: Serration stall	De Jong: Nonlinear wave propagation	Kroener: HRTFs and loc. accuracy	Hyodo: AD in Thermoacoustics
						19 E (p. 192)	
15:00	Tanner: Hybrid DEA-ATPA approach	Holub: Parallel task tests with EEG	Coffee break	Choi: Leading-edge Undulations	Mensah: Adjoint shape sensitivity	Oberfeld-Twistel: Temp. loudness weights	Yeddula: Sound propagation in a duct
							25 C (p. 194)
15:20	Nakamura: Input power to tire by SEA	Woodcock: Pupillometry and Masking	Coffee break	Lyu: LE/TE noise reduction	Petrosino: Pseudospectral auralizations	Rimskaya-Korsakova: Pulse loudness detection	Leighton: Ultrasound in Air
15:40	Poster Forum 1st floor foyer	Poster Forum	Poster Forum	Poster Forum	Poster Forum	Poster Forum	Kling: Ultrasound noise
16:00	Poster Forum 1st floor foyer	Reimes: Quality Predic. in Noise	Poster Forum	Poster Forum	Poster Forum	Poster Forum	Poster Forum
			01 C (p. 185)		**15 D** (p. 189)		
16:20	Pavic: Vibration of arbitrary body	Schäfer: Audio Quality Evaluation	Fuller: Acoustic Meta Materials	Liu: Serrated Airfoils in Tandem	Deconinck: Num. studies noise nozzle	Meunier: Pitch and Global Loudness	Liebler: Airborne Focused Ultrasound
		23 W (p. 183)					
16:40	Woo: Rendering for panel speakers	Gößling: Binaural MVDR Beamforming	Tan: Active Noise Control System	Ryu: Fan tip-rake	Gorenflo: Air Flows at Resonators	Becker: Tonality Calculation	Barrera-Figueroa: Traceability for ultrasound
17:00	Lee: Control of HiFi Panel Speaker	Graetzer: Mask-Based Speech Enhanc.	Langfeldt: Partitions with metamaterials	Thomas: Aeroac. and Shock Dynamics	Shaposhnikov: DG for acoustic-structure	Oetjen: Spectral prominence	Plack: EHF Hearing Thresholds
			08 W (p. 185)				
17:20	Benbara: Bending waves focusing.	Hodoshima: Reverb.-induced speech	Liepert: Total noise assessment	Mayer: NACA 0012 stall	Ram: Fast EBEM	Akita: Feelings to Noise	Dolder: Parametric array exposure
17:40		Arifianto: Madurese Speech Synthesis	Montano: Infrasound and LF immission	Huang: Super-resolution imaging	Masumoto: source eval. by LF-FMBEM	Biberger: Audio Quality Model	Kamigaki: Intensifying ESE Emitter
18:00		Arifianto: Speech Synthesis	Licitra: RTN Mapping with Big Data		Eser: Radiation Simulation MOR		Ueda: Auditory evaluation of VHF

Posters on Thursday, 12 September

Location: 1st floor foyer
Poster Forum: 15:40 - 16:20

Topic 16: Musical acoustics (p. 156)	**Topic 18: Physiological, psych. and audiol. acoustics** (p. 157)			**18 O: Speech enrichment** (p. 160)	
Colinot: Reed conical instrument	Aguirre: Virtual spatial cue distortion	Ma: Localisation from waveform	Schädler: Speech intelligibility maps	Chermaz: NELE in Real. Environments	Padinjaru Veettil: Enhancement hearing aids
Kobayashi: Tone hole with a moving pad	Carroll: Quiet Sounds Change Brain	McMurray: Learning auditory categories	Shigeno: Age Perception	Exenberger: Hearing aid users	Paul: Improved GAN for Conversion
Kröger: Production mechanisms	Doi: Demodulation of BCU	McMurray: Fusion in Cochlear Implants	Simon: 3D Localization HI Persons	Funatsu: Verbal transformation effect	Paulus: Talker intelligibility, effort
Kuramoto: Reproduction of shakuhachi	Heinermann: ITD sensitivity over frequency	Morita: Voice conversion model	Suzuki: MOCR and sleep	Govender: Cognitive load of TTS	Raman: Oesophageal Speech Enrich.
Murata: Effects of Music on Creativity	Jensen: Auditory Reality and EMA	Nunn: IDL and AM in CI	Tamaoki: Hearing restoration by VNS	Hall: Listening effort and EEG alpha	Shen: Articulatory Control in Speech
Ogi: Sparse Modeling of Sounds	Jitsukawa: Cartilage conduction	Otsuka: MOCR preceeding effect	Tamesue: Onomatopoeic Expression	Kaplan: Prosody and Musical Training	Simantiraki: Speech Rate Preferences
Okemoto: Tempo estimation in music	Kao: Meniere's disease OAE	Qin: Placement of bone conduction		Kirwan: Auditory Emotion Recognition	Teraoka: Directivity of attention
Padmanabhan: Mridangam Cavity Acoustics	Keshishzadeh: Broadband EFRs	Rennies-Hochmuth: Binaural listening effort		Llorach: Word error and confusion	
Petersen: Cutoff of conical woodwind	Liao: SOAE Pitch Familiarity	Riki: Distantly presented BCU		Marcoux: Non-Native Lombard Speech	
Yokoyama: Orthotropy influence on plates	Luberadzka: Modeling Attentive Tracking	Roßbach: Deep speech percep. model		Padinjaru Veettil: Benefits Speech Modification	

Topic 19: Psycho-acoustics (p. 161)	**Topic 21: Soundscape and Urban Planning** (p. 162)		**Topic 22: Sound design** (p. 164)	**Topic 23: Speech** (p. 164)	
Ferrand: HRTF for audio guidance	Alsina-Pages: Andorra's Soundscape	Salah: Living Green Walls Acoustics	Nakagawa: Thermal impression HVAC	Agrawal: Retroflex Consonants	Tomaru: Percept. in Sentence Context
Fischenich: Primacy loudness dominance	Hong: Factors influenc. Soundscape	Sutcliffe: SALVE	Soeta: Air-Conditioner Noise	Ali: Partial RTF for MVDR	Wang: Speech Enhanc. by TFC-GLA
Matsumoto: Cound environment hospital	Ki: Soundscape National Park	Tezuka: Perception AV simultaneity		Bahners: Speech Perturb. Experiment	Zhang: Speech Acclimatization
Morikawa: Monaural sound segregation	Kim: ANN, Noise, Air, Urban Forms	Xing: Evaluate Soundscape by ANN		De Lello: Speech Recordings Evaluation	
Shiell: Auditory Spatial Acuity	Lionello: Soundscape Scaling Analysis	Yoo: Soundscape engineering		Fujimoto: Vowel devoicing in Japanese	
Yamada: Extension of Directional Band	Lordieck: Sound and Weather	Zhang: Impact of traffic noise		Kosaka: Emotion Recognition	
Yap: Cartilage-conduction hearing	Malecki: Lipnica Murowana			Laprie: Hypotheses Artic. Synthesis	
	Park: Urban forms and Noise map			Lee: Mandarin stretching strategy	
	Rocha: Separation Vehicle Sounds			Nozaki: Anchors Utterances Detection	
	Rodriguez Manzo: Urban Noise Interpretation			Ogata: Inverse Estimation	

Friday, September 13, 2019

	Europa	Brüssel	Berlin 1	Berlin 2	Berlin 3	Lissabon 1	Lissabon 2
	Health effects 09.2 E (p. 196)	**Electro-acoust. 12 D** (p. 198)	**Building acoust. 04 C** (p. 200)	**Electro-acoust. 12 A** (p. 201)	**Virtual acoust. 27 A** (p. 203)	**Vehicle acoust. 10 W** (p. 206)	**Room acoustics 20 N** (p. 208)
08:40	Takahashi: Noise and health in ASD	Nowak: Comp. Chamber Distortion	Astolfi: Italian standard for schools	Irwansyah: Cross-Talk Comp. Filter	Ruediger: Acoustic source localisation	Ramos Romero: Asphalt classification	Busch-Vishniac: Next Steps in Hospital Noise
09:00	Spilski: Well-being and health	Panzer: LEM of Compression Driver	Kylliäinen: Finnish acoustic regulation	Chen: PAE Adjustable Ambients	Gallun: Attention and Speech	Vaishya: Gear rattle noise analysis	Larsen: Room acoustics in Hospitals
09:20	Shu: Soundscapes for children	Li: Acoustic simulation	Hagberg: Acoustics in wood	Iwaya: Head Rotation Trajectories	Oberem: Auditory selective Attention	Khare: NVH Study for Whoop Noise	Zaman: Cognitive Effects of Noise
09:40	Dzhambov: Ldn, NO2 and birth outcomes	Novak: T/S Parameters Measurement	San Ozbilen: Cost parameters insulation	Coffee break	Meister: Cocktail-party listening	Nygren: Drive Cycle Noise Emissions	Reinten: PM and Room Acoustics
10:00	Kawai: Absorption for children	Coffee break	Coffee break	Sugimoto: Real time MPEG-H 3DA	Ihlefeld: (Un)Reliability of ITD cues	Rasa: Damping / Thermal Compound	Barach: Neonatal intensive unit
	Active syst. 01 D (p. 197)		**History 06 A** (p. 200)			**10 B** (p. 206)	
10:20	Maeda: Comparisons Virtual Sensing	Velarde Criado: Effective Radiation Area	Bruyninckx: History of office acoustics	Falcon Perez: Machine Learning RT60	Bhattacharyya: In Between Spaces	Coffee break	Quinn: Staff experience in OR
					19 D (p. 204)		
10:40	Xie: Virtual Sensing Technique	Moreno: Measurement Back Loading	Tkaczyk: Sound and Science	Bahri: Crosstalk Cancellation	Steffens: Influence of cognitive load	Masayuki: Analysis of vehicle horn use	Sudarsono: Hospital ward soundscape
				Soundscape 21 P (p. 202)			
11:00	Fujii: Converg. Detection Method	Castro: Multi Resonators Meas.	Scheuren: Engineering Acoustics	Aletta: Soundscape and well-being	Jakobs: ERS in sound evaluations	Misdariis: Electric and Autonomous Car	Chen: Noisiness in Hospital
11:20	Dongyuan: Avoiding Saturation of ANC	Schneider: Real-world measurements	Van der Miesen: Echoes and Guns	Aumond: Soundscape indicators	Saze: Perception feature of UHL	Matsuda: Design of AVAS sound	Kaithali Narayanan: Head movem. and ASSR

Europa

11:45 **Keynote Lecture Maria Heckl**

"Thermoacoustic instabilities - physical mechanisms and mathematical modelling" (see p. 58)

12:30 **Lunch Break**

	Amsterdam	K3	K4	K5	K6	K7/K8	K9
	Struct.-borne sound 24 F (p. 211)	**Noise + vibr. policy 08 D** (p. 213)	**Sound design 22 B** (p. 215)	**Musical Acoust. 16 B** (p. 216)	**Numerical acoust. 15 D** (p. 218)	**Psychoacoustics 19 A** (p. 219)	**Physical acoust. 17 W** (p. 221)
08:40	Lee: Renaissance of SI Analysis	Malec: Acoustic noise maps		Tan: Piano sympathetic vibration	Panagiotopoulos: Model Order Reduct. in BEM	Braasch: Natural sound scapes creator	Jerome: Radiation Force and Torque
09:00	Kokott: Structural Intensity Barrier	Silvaggio: Noise LEZ in urban planning		Pezzoli: Simulation of violin top plate	Guerbuez: Sound energy with BEM	Pelizzari: Background Sounds in Noise	Lechat: Impact of roughness
09:20	Huang: Structural intensity method	Lippold: Soundscape Planning	Fiebig: Product sound quality	Coaldrake: Modelling of the koto	Yasuda: Convergence tolerance BEM	Lee: Construction noise	Naderyan: Damping Model for MEMS
09:40	Miyama: Low vibration design by SI	Tong: Noise complaints	Yamaguchi: Sound Quality Improvement	Sakamoto: Koto Bridge Ivory Alternatives	Burgschweiger: FEM shell as BC for BEM	Schlittenlacher: Binaural-temporal loudness	Coffee break
				Underwater 14 C (p. 217)			
10:00	Coffee break	Lee: Urban acoustics approach	Wake: UI-Sound Design	Kurtze: Innovative couplings	Baydoun: Acoustic radiation damping	Hongisto: Amplitude mod. and penalty	Zavershinskii: Magnetoacoustic waves
10:20	Pires: Structural intensity on shells	Coffee break	Coffee break	Lohmann: EFEM for vibro-acoustics	Coffee break	Rajala: Annoyance impulsive sounds	Zhao: Sound generation GMAW
		Ultrasound 25 B (p. 213)	**Soundsc. 21 L** (p. 215)				
10:40	Kleinfeller: Measurement of STI	Sugimoto: NDT Spatial spectral entropy	Zahorik: A/V Distance Perception	Kratzsch: Marine Propellers	Kasess: Moving sources and BEM	Letens: Psychoacoustics in Cars	Kahraman: Noise level during rock sawing
11:00	Groba: Energy analysis methods	Schmelt: Identifying objects in 2D	Felcyn: Ask about environment	Humphrey: Vessel noise measurements	Waubke: Simul. tunnel vibrations	Ellermeier: Annoyance and sensitivity	Coffee break
11:20	Winter: Experimental STI on fuselage	Golub: Egde and Lamb wave exc.	Nitidara: Outdoor Multimodal Percept.	Han: Underwater Pile Driving Noise	Schmutzhard: 2.5D - BEM tunnel vibrations	Nowak: Assessment Noise Barriers	

Friday, September 13, 2019 (continued)

	Europa	Brüssel	Berlin 1	Berlin 2	Berlin 3	Lissabon 1	Lissabon 2
	Active acoust. systems 01 D (p. 197)	**Electro-acoust. 12 D** (p. 198)	**History 06 A** (p. 200)	**Soundscape 21 P** (p. 202)	**Phys., psych. and aud. 18 E** (p. 205)	**Vehicle acoust. 10 B** (p. 206)	**Room acoustics 20 O** (p. 210)
14:00	Zhang: Decentralized N-Channel ANC	Backman: Miniature loudspeaker models	Dobrucki: Acoustics in Wroclaw	Brink: SiRENE-Survey Part 1	Smeds: LEAP	Yasui: Characteristics / impression	Neal: The CHORDatabase
14:20	Giouvanakis: ANC Low-Bl Loudpeakers	Ehrig: Electrostatic MEMS Speakers	Cairoli: Secularization of Church	Wunderli: Intermittent Noise Annoyance	Hendrikse: Audiovisual Environments	Kosuge: Awareness of quiet vehicles	De La Prida: List. Tests in Room Acoustics
	Sound design 22 C (p. 197)		**Biom. Ultras. 26 B** (p. 201)				
14:40	Sung: HVAC/R Equipment Noise	Rustighi: DEAP loudspeaker	Urban: Local Phase Velocity Imaging	Lercher: Noise and hypertension	Mansour: Realistic Virtual Environment	Naka: Localization warning sound	Kohnen: Room loudn. vs headphones
						Health effects 09.2 F (p. 208)	
15:00	Töpken: Level penalties for fan noise	Boulandet: Loudspeaker ac. impedance	Jiménez: Holograms in the brain	Dekoninck: In-Car Noise and Road Quality	Eqlimi: Auditory attention indicators	Van Kamp: Method for HIA	Kazuki: Bone-conducted sound
15:20	Schneider: Sounds from heat pumps	Abramova: Modelling MEMS transducer	Coffee break	Coffee break	Viveros: Influence room acoustics	Schreckenberg: Health assessm. Düsseldorf	Braasch: Binaural Modeling
15:40	Masullo: HVAC noise in car cabins	Coffee break	Yu: Time-Resolved Flow Imaging	Marquis-Favre: In situ psychoacoustic indices	Holube: Assessment in everyday life	Preis: Noise Guidelines in Poland	Griesinger: Accurate Binaural Reprod.
16:00	Hashimoto: Improv. of Booming Sound	Guianvarc'H: Microphones and temperature	Grasland-Mongrain: Microelastography eval.	Lienhart: In-/Outdoor noise indicators	Hladek: Behavior in Complex Scenes	Gjestland: Noise and annoyance	Araujo: Room Dimensions Estim.
16:20	Nakano: Tonal Noise in Small Fan	Honzík: MEMS with micro beam		Taghipour: Quiet Periods Influences	Buchholz: More realistic speech test	Fenech: Impacts of noise in UK	Wendt: Vertical auditory movement
16:40	Van Dijk: Broadband wool-free silencers				Picinali: SRM assessment in VR	Notley: Valuing Impacts of Noise	Woszczyk: Room Acoustics Library

17:00 **Closing ceremony with EAA Best Paper Award presentation** (Europa, see p. 53)

	Amsterdam	K3	K4	K5	K6	K7/K8	K9
	Struct.-borne sound 24 W (p. 212)	**Ultrasound 25 B** (p. 213)	**Noise + vibr. policy 08 E** (p. 216)	**Underwater acoust. 14 C** (p. 217)	**Numerical acoust. 15 D** (p. 218)	**Psychoacoustics 19 A** (p. 219)	**Signal processing 02 H** (p. 222)
14:00	Lee: Lightweight skeletal structure	Sugimoto: NDT by UAV	Schelle: Ordinance on Workplaces	Kozaczka: Shipping noise at shallow sea	Duhamel: Domain Decomposition	Seeber: Defects in wind turbine blades	Pujol: Localization in Reverb. Room
14:20	Seiler: Gearboxes in Maritime	Adler: Ultrasonic Spectroscopy	Boehm: Noise Prediction Workplaces	Bellmann: Pile Driving Noise	Wulbusch: Artificial boundary shape	Yano: Disturbances Aircraft Noise	Ueda: Sound Quality Improvement
14:40	Miguez: DS and BF in machinery	Coffee break	Heisterkamp: Buy Quiet: OND and MD	Von Pein: 3D Pile Driving Noise Model	Kreuzer: BEM simulation for tubes	Hashimoto: Improvement of Copier Noise	Martin-Morato: Perf. Analysis Deep Features
15:00	Filippoupolitis: Vibration transmission	Kahraman: P-wave velocity of rocks	Coffee break	Hasenpflug: Underwater radiated noise	Coffee break	Yamada: Dental Drill Noise Evaluation	Coffee break
	Physiolog. 18 G (p. 212)						
15:20	Barumerli: Auditory Models Comparison	Terzi: Baseline-free dynamic method	Pleban: Admiss. Values and Methods		Li: Direct ML-FMiBEM	Coffee break	Inoue: MVAE based unified approach
		Ultrasound 25 W (p. 214)					
15:40	Reichenbach: Decoding attention to speech	Pamidi: Cavitation effect on fibers	Wu: Canada Ultrasound Policy		Aussal: Vibro-acoustics GypsiLab	Krahé: Annoyance of Infrasound	Kuno: Neural Network Beamforming
16:00	Karbasi: Speech intelligibility metric	Matsuda: Imaging acoustic waves	Selzer: Noise in retail trade		Coffee break	Benz: Psychol. Reaction Infrasound	
16:20	Hauth: Binaural Speech Intelligibility	Akhmedzhanov: Attenuation of Waves				Müller: Physiol. effects on infrasound	
16:40							

Meetings during the ICA 2019

Please find here the main meetings during ICA 2019 (dated 10 August). All meetings on this page are open to the participants of ICA. In regards to short-term changes, please check with the conference app: http://app.ica2019.org/

General Assemblies

Sunday, 8 Sep	13:30 - 18:30	EAA General Assembly	Institute of Technical Acoustics
Wednesday, 11 Sep	16:00 - 18:00	ICA General Assembly	Brüssel

EAA Technical Committees

Tuesday, 11 Sep	12:30 - 14:00	Signal Processing	Brüssel
Tuessday, 11 Sep	12:30 - 14:00	Noise	Berlin 2
Wednesday, 11 Sep	12:30 - 14:00	Hydroacoustics	K5
Wednesday, 11 Sep	12:30 - 14:00	Room- and Building Acoustics	Brüssel
Thursday, 11 Sep	12:30 - 14:00	Computational Acoustics	K5
Thursday, 11 Sep	12:30 - 14:00	Physiological and Psychological Acoustics	Berlin 3
Friday, 11 Sep	12:30 - 14:00	Ultrasound	K3

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Special Events

5 minute Research Story Competition

Date: Monday | 13:20 - 15:20 in room Brüssel
Chairs: Keeta Jones, Trevor Cox

A researcher's ability to create a succinct yet compelling narrative about their work is an invaluable skill. This event is meant to help ICA attendees communicate the most important parts of their research in a short amount of time. Participants are allotted 5 minutes and one slide to present a compelling pitch or story to describe their research to a general audience. This is not an exercise in trivializing research but requires participants to consolidate their ideas and crystallize their research discoveries or applications.
All attendees are welcome to participate - students, researchers, lecturers, industry workers, applied scientists, etc.
Even if you're not entering, come along and hear about the latest acoustics research in short bite-sized chunks, and support the communicators who are going to be out there promoting acoustics to the public in the future!

More information: Please see App at http://app.ica2019.org/konferenz?article=15

Presentation of the young & early-career acousticians societies

Date: Monday | 15:20 - 18:00 in room Brüssel
Chairs: Mathieu Gaborit

The variety of the young and early-career acousticians societies will present themselves and invite young acousticians to participate. There will be presentations by

- YAN - Young Acousticians Network of the EAA
- UKAN - The UK Acoustics Network
- jDEGA - junge DEGA (group of the German Acoustical Society)
- and others

Science communication panel

Date: Tuesday | 16:20 - 18:00 in room K3
Chairs: Keeta Jones, Trevor Cox

Within this panel, invited speakers will discuss relevant questions of science communication. Please find more information at: http://app.ica2019.org/konferenz?article=26

Interactive session: Education in acoustics

Date: Wednesday | 15:30 - 17:30 at “Tagungstreff” (Media Check-in)
Chairs: Lukas Aspöck, Karolina Jaruszewska

Everyone interested is invited to join the interactive session about education in acoustics, which includes contributions from industry and academia:

- Blended learning materials, software for teaching and online courses
- Apps for interactive teaching of acoustic phenomena
- Live demonstrations on mobile devices and VR headsets

So far, the following projects are registered, further are planned:

- Communication Acoustics - a massive open online course
- IOA’s diploma in acoustics and noise control - concept and blended learning materials
- acoucou.org - free educational materials for acoustics
- Interactive acoustics apps developed at TU Munich
- Software for teaching and research in acoustics developed at RWTH Aachen University

Roundtable discussion: Aircraft noise annoyance and quality of life

Date: Thursday | 14:00 - 17:00 in room Luxemburg
Chair: Dirk Schreckenberg

You are invited to attend this roundtable discussion workshop with researchers from the H2020 ANIMA research project. This is an opportunity to hear more about the work undertaken in ANIMA, and importantly is an opportunity to provide input into the work, specifically in terms of implications for future research policy and practice. Please find more information at: http://app.ica2019.org/konferenz?article=1358

UKAN / ITN ENRICH: Careers in industry and academia workshop

Date: Thursday | 16:20 - 18:00 in room Berlin 1
Chairs: Volker Hohmann, Amy Jane Hall, Kirill Horoshenkov, Julio Cordioli

The purpose of this workshop is to present to early career researchers working in acoustics the opportunities for developing their longer-term careers in industry and academia. This workshop will also explain that there is a wide range of possible career paths which exist between the industry and academia particularly for those people who are interested in research. This workshop will include a range of speakers who will present their personal experience of going through several career stages and employment opportunities which can be explored at each of these career stages. This event will enable the early career researchers to raise questions related to their career aspirations and possible choice. There will be also the opportunity for informal networking with their peers and more established academic and industry members working in acoustics. Complementary drinks and snacks will be provided near the end of this workshop to help facilitate the informal networking process.

Technical Tours

RWTH Aachen University - aixCAVE Virtual Reality System & Institute of Technical Acoustics

Date: Wednesday, 11 September | 15:45 - 18:00
70 persons max.
Meeting place: Will be announced after registration
Registration: On-site at the registration desk (first come, first serve)

The visit to the Institute of Technical Acoustics of RWTH Aachen University provides an insight into the scientific activities and the infrastructure of the research institute. The tour will cover the two main aspects of virtual acoustics and hearing research. Members of the institute will show one of the largest virtual reality systems worldwide, the sound reproduction of room acoustic scenarios calculated in real-time and the auralization of building environments including sound insulation. In the field of hearing research, experimental setups will be shown to investigate auditory attention switching, speech in noise perception with hearing aids and children's hearing in a mobile laboratory facility for listening experiments using virtual acoustics.

Participants can identify two topics of core interest in order to experience those two exhibits in a dedicated demonstration. The topics to choose from are

- the aixCAVE VR System
- building acoustics auralization in a HMD demonstration
- Speech in noise perception in a spatial scenario with hearing aids in a hearing booth
- Binaural auditory selective attention experiment in a hearing booth
- Speech reception of children using virtual acoustics in a mobile hearing lab (MobiLab)

Please indicate your topics of interest when registering to the technical visit at the registration desk on-site. Participation in this live demonstration is subject to availability.

RWTH Aachen University - Institute for Automotive Engineering

Date: Tuesday, 9:00 - 10:00
30 persons max.
Meeting place: Will be announced after registration
Registration: On-site at the registration desk (first come, first serve)

On this tour, the participants are invited to the labs of the Institute for Automotive Engineering (ika) of the RWTH Aachen University. The increasing importance of electromobility and autonomous driving pose new challenges for acoustic research in the automotive sector. Participants will have the opportunity to experience various test benches including a combined thermal-acoustic chamber and the fully electric research vehicle SpeedE, which incorporates a variety of interesting concepts such as customizable Active Sound Design and a steer by wire system for steering angles up to 90°.

Sound. Voice. Passion. – Experience HEAD acoustics

Date: Wednesday | 15:15 - 18:00 (journey included)
24 persons max.
Duration: 1.5 - 2 hours
Meeting place: Will be announced after registration
Registration: On-site at the registration desk (first come, first serve)

In addition to a company tour (including insights into our test and research facilities), you are invited to become active yourself. Look forward to suspense topics: From active sound design through sound intensity measurements to procedures for optimizing voice and audio quality. Furthermore, we present 5-minute teaser lectures on current research and provide the opportunity to interact with our software and hardware solutions. This excursion will bring you closer to the variety of HEAD acoustics.

Social Program

Opening Ceremony

Date: Monday, 9 September | 9:00 - 10:45
Venue: Hall Europa

Participants and their accompanying persons are welcome to join the opening reception on Monday. It will be enriched by the music of singer Lily Dahab and band, which unifiy tango and folklore, delicate poetic songcraft and Argentinean rock and pop. More information on the artist: www.lilydahab.com.

Exhibition Reception with 5-minute Research Story Competition award

Date: Monday, 9 September | 18:00 - 19:00
Venue: Exhibition area (Foyers on ground floor)

All participants are invited to join for a drink and a look around the exhibition while finishing the first conference day. At the reception, the winners of the 5-minute Research Story Competition will be announced and presented with their prize. Lily Dahab and band will also enrich this event with their music.

Organ Concert at Aachen Cathedral

Date: Tuesday, 10 September | 19:00 - 21:00
Venue: Aachener Dom

Please make sure to bring your conference badge.

Please note: The seats are limited for 1100 persons without exception. Entrance begins at 18h45 for concert visitors. As a visitor of the cathedral you can also come in earlier.

Aachen Cathedral is renowned for its history and architecture, which eventually lead to its status as world heritage, granted by UNESCO in 1978. Michael Hoppe is the main organist of Aachen Cathedral. He will enrich this social event with an organ concert specially for ICA participants and their accompanying persons. The event is included in the registration of both delegates and also accompanying persons.
More information on Aachen Cathedral: www.aachenerdom.de/en

Social Evening at Ludwig Forum for all participants

Date: Wednesday, 11 September | 19:00 - 23:00
Venue: Ludwig Forum Aachen

Please make sure to bring your conference badge.

Adress: Jülicher Straße 97–109 (please see flyer and conference app.)

All participants and accompanying persons are invited for this evening without further costs, including dinner and drinks.
Since 2000, the social event at the German DAGA Conference includes a Jam Session with Jazz, Blues, Rock and other music styles. At the occasion of ICA 2019, an international Jam Session will take place in the so-called “Space” of the Museum. It will be open for participants from all over the world who like to join the Jam Session, which is explicitly open to all kinds of music genres.

Closing ceremony with EAA Best Paper Award presentation and reception of follow-up ICA

Date: Friday, 13 September | 17:00 - 18:00
Venue: Hall Europa and Foyer

The EAA Best Papers Award will be presented. The closing reception after the official ceremony will be hosted by ICA 2022 (Gyeongju, Korea).

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Exhibition

Opening times: Monday, 12 am to Thursday, 1 pm.
Besides the technical program, companies will be able to display the latest technology and services in the areas of noise and vibration in the conference exhibition. It is located in the ground floor foyers.
On the following page, you will find a list and map of companys which are presenting their products and services at ICA 2019.

Reception in the Exhibition Area

Monday, 9 September | 18:00 | Exhibition area on the ground floor
All participants and exhibitors are invited to enjoy some drinks while exploring the exhibition.

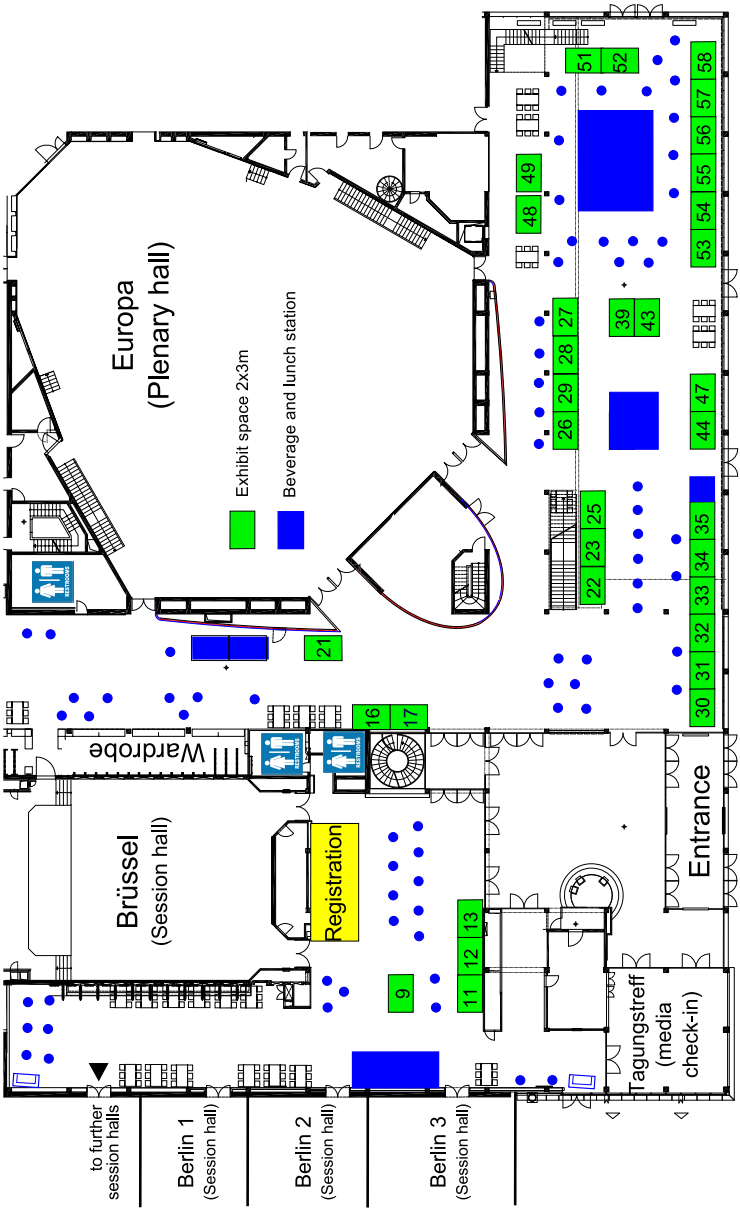
Advertising Matter

Distribution of advertising matter is only permitted within the exhibitor´s booth.

Exhibitors

Booth - Company
09 – Industrial Acoustics Company GmbH
11 – OROS GmbH
12 – FONOR Environmental Protection and Occupational Safety Ltd
13 – Wölfel Engineering GmbH & Co. KG
16 – Ultrahaptics Holdings Ltd
17 – Verasonics
21 – Rotho Blaas
22 – NTi Audio GmbH
23 – Taylor & Francis Group
25 – PCB Synotech GmbH
26 – gfai tech GmbH
27 – DEWESoft Deutschland GmbH
29 – CAE Software und Systems GmbH
30 – Odeon A/S
31 – Norsonic AS
32 – GRAS-Tippkemper GmbH & Co. KG
33 – Sound of Numbers SL
34 – Gesellschaft für Akustikforschung Dresden mbH
35 – SINUS Messtechnik GmbH
39 – Gerriets GmbH
43 – Comsol Multiphysics GmbH
44 – RION Co. Ltd
47 – Microflown Technologies
48 – DataKustik GmbH
49 – REGUPOL BSW GmbH
51 – Amorim Cork Composites
52 – SoundPLAN GmbH
53 – HEAD acoustics GmbH
54 – HEAD acoustics GmbH
55 – Brüel & Kjaer GmbH
56 – acoustex
57 – d&b audiotechnik GmbH

Exhibition overview



Plenary and Keynote Lectures - Abstracts

Marion Anne Burgess: Sound and Noise around us
Monday, 9 September | 11:15 | Plenary Hall (Europa)

Sound is fundamental to our social structure from the basic need for communication through to the expression of our emotions in music. Sound at too high a level can cause damage to hearing and it is the role of society, workplace management and governments to ensure that the community is aware of the risk and that this risk is minimised by implementing noise control and noise management. Extensive research has shown that sound levels that commonly occur in our cities and rural areas and that may be below the damage risk level can create annoyance and lead to various health effects. Sometimes we may desire silence. But generally, there is a level of noise that we consider acceptable; when the noise from outside does not interfere with what we are doing at that time. So limits and control measures need to be implemented to keep community noise within the acceptable range while still allowing for the necessary business, industry, transportation and entertainment to continue. Engineering noise control at source is a solution for some problems. For others an acceptable environment may be achieved by coupling a deep understanding of the effects of noise with the application of some of many tools available using modern technology. Promotion of best practices in the wide community is one of the goals for the activities that are part of the ICA organised International Year of Sound in 2020.

Shrikanth Narayanan: Sounds of the human vocal instrument
Tuesday, 10 September | 11:45 | Plenary Hall (Europa)

The vocal tract is the universal human instrument played with great dexterity to produce the elegant acoustic structuring of speech, song and other sounds to communicate intent and emotions. The sounds produced by the vocal instrument also carry crucial information about individual identity and the state of health and wellbeing. A longstanding research challenge has been in improving the understanding of how vocal tract structure and function interact, and notably in illuminating the variant and invariant aspects of speech (and beyond) within and across individuals. The first part of the talk will highlight engineering advances that allow us to perform investigations on the human vocal tract in action – from capturing the dynamics of vocal production using novel real-time magnetic resonance imaging to machine learning based articulatory-audio modeling–to offer insights about how we produce sounds with the vocal instrument. The second part of the talk will highlight some scientific, technological and clinical applications using such multimodal data driven approaches in the study of the human vocal instrument.

Christopher Wiebusch and Tim Otto Roth: Astroparticle Immersive Synthesizer3 or how cosmic "ghost particles" inspire a novel concept of spatialisation of sound, Wednesday, 11 September | 11:45 | Plenary Hall (Europa)

AIS-3 or [aiskju:b] is a contemporary response to the ancient idea of a music of the spheres connecting cosmology and music in novel way. The sound laboratory with its 444 illumi-

nated spherical speakers, which is presented in late Summer 2019 at the Ludwig Forum für Internationale Kunst in Aachen, adopts the form and arrangement of the weirdest telescope in the world: IceCube consists of 5160 light sensors that are frozen deep into the Antarctic ice shield at the South Pole, covering a full cubic kilometre of ice. The sensors register the tiny flashes of light that occur in the rare case of an interaction of a very special type of elementary particle: a neutrino. In our joint presentation we show the way how these "ghost particles" made their way from astro-particle physics to become the agents of an unique fundamental experiment in psychoacoustics, turning space into a sound generator in which the visitor becomes immersed. www.imachination.net/ais3

Jérémie Voix: The ear at the age of IoT
Thursday, 12 September | 11:45 | Plenary Hall (Europa)

In this age of the Internet of Things (IoT), wearables are now everywhere, sometimes even in your earcanal. The research team from the NSERC-EERS Industrial Research Chair in In-Ear Technologies (CRITIAS) has been actively developing various in-ear technologies designed to complement the human ear, from "smart" hearing protection against industrial noises, to advanced inter-individual communication systems, to hearing health monitoring devices using otoacoustic emission (OAE), to in-ear EEG Brain Computer Interface (BCI). More fundamental research has also been conducted, particularly on the micro-harvesting of electrical power from inside the earcanal to power future auditory wearables. The lastest research developments will be presented in this keynote presentation, together with some of the recent developments achieved through the CRITIAS industrial research chair in in-ear technologies or other research groups.

Maria Heckl: Thermoacoustic instabilities – physical mechanisms and mathematical modelling, Friday, 13 September | 11:45 | Plenary Hall (Europa)

If a flame is put into an acoustic resonator, an escalating interaction between the flame's heat release and the acoustic field can occur, giving rise to intense pressure oscillations. This phenomenon is termed "thermoacoustic instability". It occurs in combustion systems that have a continuously burning flame, such as gas turbines, jet aeroengines, boiler and heating systems, furnaces and rockets. Thermoacoustic instabilities are a serious problem because they can lead to excessive structural vibrations, fatigue, and even catastrophic hardware damage. The escalating flame-sound interaction occurs in tandem with other physical mechanisms, leading to a complex web of interactions, most of which are nonlinear. They include flame-vortex interactions, flame response to fluctuations in fuel concentration, entropy waves, flame-structure interactions, and others.
The development of low-pollution combustion systems is very important for our environment. However, such combustion systems are particularly prone to thermoacoustic instabilities. Progress with developing combustion systems that are immune to these is hampered by insufficient physical insight. Efforts to gain further insight are going on by researchers worldwide using experimental, analytical and numerical tools. This talk aims to give an overview of the key physical mechanisms involved in thermoacoustic instabilities and will pay particular attention to mathematical modelling approaches.

Sessions on Monday, 9 September

Keynote Monday
Monday, September 9 | Europa
Abstract: see page 58
Chair: Jorge V. Patrício

11:15 **Sound and Noise around us**
Marion Anne Burgess
UNSW Australia

20 A - Virtual auditory reality for enclosed spaces
Monday, September 9 | Europa
Chairs: B.F.G. Katz, M. Otani

13:20 **Environmental Audio Scene Description and Rendering Model for Virtual or Augmented Reality**
Jean-Marc Jot, Rémi Audfray and Sam Dicker
Magic Leap, Sunnyvale (USA)

13:40 **Attempt to Improve the Total Performance of Sound Field Reproduction System: Integration of Wave-Based Methods and Simple Reproduction Method**
Hiroshi Kashiwazaki[a] and Akira Omoto[b]
[a] *Graduate School of Design, Kyushu University;* [b] *Faculty of Design, Kyushu Univ.*

14:00 **Design and simulation of a benchmark room for room acoustic auralizations**
Fotis Georgiou[a], Baltazar Briere de la Hosseraye[a], Maarten Hornikx[a] and Philip W. Robinson[b]
[a] *Eindhoven University of Technology;* [b] *Oculus & Facebook, USA*

14:20 **Individualized dynamic binaural Auralization of Classroom Acoustics using a Virtual Artificial Head**
Mina Fallahi[a], Martin Hansen[a], Simon Doclo[b], Steven van de Par[c], Dirk Püschel[d] and Matthias Blau[a]
[a] *Institut für Hörtechnik und Audiologie, Jade Hochschule, Oldenburg, Germany;* [b] *Dept. Medical Physics and Acoustics, University of Oldenburg;* [c] *University of Oldenburg;* [d] *Akustik Technologie Göttingen*

15:00 **Anechoic audio and 3D-video content database of small ensemble performances for virtual concerts**
David Thery[a] and Brian F. G. Katz[b]
[a] *Sorbonne Université - IJLRA - LAM, Paris;* [b] *Sorbonne Université, CNRS, Institut d'Alembert*

15:20 Effects of the order of Ambisonics on localization for different reverberant conditions in a novel 3D acoustic virtual reality system
Hermes Sampedro Llopis[a], Finnur Pind[b] and Cheol-Ho Jeong[a]
[a] *Technical University of Denmark (DTU);* [b] *Henning Larsen, Copenhagen*

15:40 Binaural reproduction capability for multiple off-axis listeners based on the 3-channel optimal source distribution principle
Motoki Yairi[a], Takashi Takeuchi[b], Keith Holland[c], Dylan Morgan[c] and Laurence Haines[c]
[a] *Kajima Technical Research Institute;* [b] *OPSODIS Limited, University of Southampton, ISVR;* [c] *University of Southampton, ISVR*

20 B - Wave-based room simulations
Monday, September 9 | Europa
Chairs: S. Bilbao, B. Hamilton

16:40 A locally implicit time-domain FEM for room acoustics simulation including permeable membrane absorbers
Takumi Yoshida[a], Takeshi Okuzono[b] and Kimihiro Sakagami[b]
[a] *Hazama Ando Corporation, Japan;* [b] *Kobe University*

17:00 Modelling Boundary Conditions in High-Order, Nodal, Time-Domain Finite Element Methods
Finnur Pind[a], Cheol-Ho Jeong[b], Jan S. Hesthaven[c], Allan P. Engsig-Karup[d] and Jakob Strømann-Andersen[a]
[a] *Henning Larsen;* [b] *Technical University of Denmark (DTU);* [c] *Chair of Computational Mathematics & Simulation Science, EPFL;* [d] *Dept. of Applied Mathematics & Computer Science, Technical University of Denmark*

17:20 Broadband Time-domain Impedance Boundary Modeling with the Discontinuous Galerkin Method for Room Acoustics Simulations
Huiqing Wang and Maarten Hornikx
Eindhoven University of Technology

07 A - 5 minute Thesis session / student events
Monday, September 9 | Brüssel | 13:20
Chairs: T. Cox, K. Jones

04 A - Prediction methods for sound insulations 1
Monday, September 9 | Berlin 1
Chairs: J. Davy, C. Guigou-Carter

13:20 **Comparison between prediction and measurement of sound attenuation associated to ventilation network elements**
Catherine Guigou-Carter[a], François Bessac[b] and Simon Bailhache[c]
[a] *Centre Scientifique et Technique du Bâtiment, France;* [b] *CETIAT;* [c] *CSTB*

13:40 **Sound Transmission through Double-glazed Window: Numerical and Experimental Analyses**
Chaima Soussi, Mathieu Aucejo, Walid Larbi and Jean-François Deü
Cnam Paris

14:00 **Sound Insulation of Monolithic or Laminated Single- and Double-Glazing Panels**
Fangliang Chen, Yihe Huang and Tejav Deganyar
Schuco-USA/Virtual Construction Lab.

14:20 **Sound Transmission through Aluminum Framings of Window, Door and Façade Systems**
Yihe Huang[a], Fangliang Chen[a], Tejav Deganyar[a], Anselm Boehm[b] and Tjorven Rebeccah Grotemeyer-Bagnall[b]
[a] *Schuco-USA/Virtual Construction Lab.;* [b] *Schuco International KG*

14:40 **Investigation of rebuild repeatability issues in laboratory impact testing**
John Loverde[a], Wayland Dong[a], Erik Holmgreen[b] and Scott Bergquist[b]
[a] *Veneklasen Associates (USA);* [b] *Maxxon, Hamel (UK)*

15:00 **Uncertainty quantification of the diffuse sound field assumption in structure-borne sound radiation predictions**
Edwin Reynders[a], Pengchao Wang[a], Geert Lombaert[b] and Cédric van Hoorickx[c]
[a] *Structural Mechanics Section, Department of Civil Engineering, KU Leuven;* [b] *KU Leuven, Department of Civil Engineering;* [c] *KU Leuven*

15:40 **Numerical Investigation of the Reverberation Method for Measuring the Total Loss Factor of Plate-Like Structures**
Yasutomo Yamasaki, Naohisa Inoue and Tetsuya Sakuma
The University of Tokyo

16:00 **Simplified prediction of the vibration reduction indices of double wall junctions**
Arne Dijckmans, Lieven de Geetere and Charlotte Crispin
Belgian Building Research Institute (BBRI)

16:20 **Sound Insulation Prediction of Single and Double CLT Panels**
Fredrik Ljunggren
Luleå University of Technology

16:40 Determining the airborne sound insulation improvement of thermal cladding systems in combination with heavyweight exterior walls
Claire Churchill[a], Maximilian Neusser[b] and Simon Hinterseer[a]
[a] *TU Wien;* [b] *ACOM Research*

17:00 Determination and optimization of sound insulation capabilities of geometrically complex walls
Elias Perras
University of Siegen

17:20 Prediction methods and evaluation of high sound insulations
Maarten Luykx
Peutz, Molenhoek

17:40 Comparison of transmission loss prediction using condensed equivalent plate models
Arasan Uthayasuriyan[a], Fabien Chevillotte[a], Luc Jaouen[a], Dimitrios Chronopoulos[b] and Emmanuel Gourdon[c]
[a] *Matelys;* [b] *University of Nottingham;* [c] *L'École nationale des travaux publics de l'État*

10 E - TPA - Transfer Path Analysis
Monday, September 9 | Berlin 2
Chairs: M. Wegerhoff, J.-G. Ih

13:20 Transfer Path Analysis of Rumbling Noise in a Passenger Car Based on Measured In-Situ Blocked Force
Sang Kwon Lee, Taejin Shin, Yeonsoo Kim and Kanghyun An
Inha University

13:40 Combining Structural Modification with In-Situ Transfer Path Analysis to Solve Noise and Vibration Problems
Andrew Elliott
University of Salford

14:00 In-Situ Transfer Path Analysis of Multiple Vibration Sources in a Complex Source- Receiver Assembly
Lucy Susan Barton[a], Andrew Elliott[b], Andy Moorhouse[c] and John Smith[d]
[a] *Acoustics Research Centre, University Of Salford;* [b] *University of Salford;* [c] *University of Salford, Manchester, UK;* [d] *DSTL*

14:20 Analysis of a vibrating structure as an airborne sound source by means of matrix inversion
Serafima Anisovich, Roland Sottek and Matthias Wegerhoff
HEAD acoustics GmbH

15:00 Can I trust my TPA results?
Frank Jürgens, Christian Nettelbeck and Philipp Sellerbeck
HEAD acoustics GmbH

15:20 Physics-Informed Transfer Path Analysis with Parameter Estimation using Gaussian Processes
Christopher Albert
Max-Planck-Institut für Plasmaphysik

15:40 Obtaining method of high contributing body and frame vibration behavior to road noise using principal component contribution analysis
Hiroki Taguchi, Kanon Nukata and Junji Yoshida
Osaka Institute of Technology

10 K - Tyre/road noise simulation
Monday, September 9 | Berlin 2
Chairs: W. Kropp, C. Hoever

16:00 The influence of tyre cavity resonances on the exterior noise
Wolfgang Kropp
Chalmers University of Technology, Division of Applied Acoustics

16:20 Prediction of dynamic hub forces as a source of structure-borne tire/coarse road noise using a high-fidelity simulation approach
Daniel de Gregoriis[a], Frank Naets[b], Peter Kindt[c] and Wim Desmet[b]
[a] *Goodyear S.A./KU Leuven;* [b] *KU Leuven/Member of DMMS Lab, Flanders Make;* [c] *Goodyear S.A.*

16:40 Use of waste and marginal materials for silent roads
Lily Poulikakos, Sahand Athari, Peter Mikhailenko, Zhengyin Piao, Muhammad Rafiq Kakar, Moises Bueno, Reto Pieren and Kurt Heutschi
Empa, Swiss Federal Laboratories for Materials Science and Technology

17:00 A LIFE NEREiDE test track with a poro-elastic pavement in Belgium
Luc Goubert
Belgian Road Research Centre

17:20 CFD Modeling of Pressure Variation in a Road Cavity with Volume Variation
Marianne Bou Leba Bassil[a], Julien Cesbron[a] and Philippe Klein[b]
[a] *IFSTTAR, CEREMA, UMRAE;* [b] *Univ Lyon, IFSTTAR, CEREMA, UMRAE*

17:40 Parametric Study of the Estimation of Indoor Trolley Wheel Stiffness for Use in a Rolling Noise Prediction Model
Matt Edwards[a], Fabien Chevillotte[a], François-Xavier Bécot[a], Luc Jaouen[a] and Nicolas Totaro[b]
[a] *Matelys;* [b] *INSA LYON -LVA*

18 A - Physiologically inspired auditory processing models
Monday, September 9 | Berlin 3
Chairs: L.H. Carney, I. Bruce

13:20 Ray Meddis: A Model Scientist
Christian Sumner
Nottingham Trent University

13:40 Electrocochleography Predictions using a Combined Model of Acoustic Hearing and Electric Current Spread in the Cochlea
Margriet van Gendt[a], Kanthaiah Koka[b], Randy Kalkman[a], Jeroen Briaire[a], Leonid Litvak[b] and Johan Frijns[a]
[a] *Leiden University Medical Center;* [b] *Research and Technology, Advanced Bionics*

14:00 Application of a Computationally Efficient Coincidence Detector Model to Simulate Auditory Brainstem Neurons
Go Ashida, Mathias Dietz and Jutta Kretzberg
University of Oldenburg

14:20 A model of the prespike of the calyx of Held synapse in the auditory brainstem
Gerard Borst and Martijn C. Sierksma
Erasmus MC

15:00 Detecting interaural incoherence based on variations in the hemispheric balance
Jörg Encke[a], Lucy Anderson[b], Werner Hemmert[c], David McAlpine[d] and Torsten Marquardt[b]
[a] *Universität Oldenburg;* [b] *University College London;* [c] *Technische Universität München;* [d] *Macquarie University*

15:20 Predicting speech intelligibility in normal-hearing and hearing-impaired listeners based on a physiologically inspired model of the auditory periphery
Johannes Zaar[a], Torsten Dau[a] and Laurel H. Carney[b]
[a] *Technical University of Denmark;* [b] *University of Rochester*

15:40 Hearing-impaired sound perception: What can we learn from a biophysical model of the human auditory periphery?
Alejandro Osses[a], Frauke Ernst[b] and Sarah Verhulst[c]
[a] *Department of Information Technology, Ghent University;* [b] *Department of Otorhinolaryngology, Head and Neck Surgery, University of Giessen;* [c] *Ghent University*

16:00 Phenotyping and Computational Modeling of Diverse Forms of Genetic Hearing Loss
Ian C. Bruce[a], Michael R. Wirtzfeld[a], Anne Griffin[b], Amanda K. Morgan[c], Matthew B. Lucas[c], Jill Lowther[b], Terry-Lynn Young[b] and Susan G. Stanton[c]
[a] *McMaster University;* [b] *Memorial University Newfoundland;* [c] *Western University*

16:40 **Clustering in an array of nonlinear and active oscillators as a model of spontaneous otoacoustic emissions**
Liv Moretto Sørensen, Peter Leer Bysted and Bastian Epp
DTU, Hearing Systems

17:00 **Simulation of cochlear response by bone conducted tone**
Yasuki Murakami
National Institute of Technology, Oshima College

17:20 **Pulse coding in the ensemble of peripheral fibres and auditory discrimination of the tone burst intensity**
Liudmila Rimskaya-Korsakova
JSC N.N. Andreev Acoustics Institute

17:40 **Towards a model of electric-acoustic stimulation in cochlear implant subjects with residual hearing**
Daniel Alrutz and Waldo Nogueira
Hannover Medical School (MHH)

02 E - Microphone array systems and methods
Monday, September 9 | Lissabon 1
Chair: G. Elko

13:20 **Bayesian inference in direction of arrival analysis using spherical microphone arrays**
Ning Xiang, Stephen Weikel and Christopher Landschoot
Arch. Acoust. RPI, USA

13:40 **Microphone array beamformer processing to reduce noise and reverberation**
Gary Elko, Jens Meyer, Eric Diethorn, Steven Backer and Tomas Gaensler
mh acoustics LLC

14:00 **The max-norm minimization in non-synchronous measurements**
Liang Yu[a], Yi Fan[b], Jerome Antoni[c], Haijun Wu[a], Quentin Leclere[c], Baihua Yuan[a] and Wei Kang Jiang[a]
[a] *Institute of Vibration, Shock and Noise, Shanghai Jiao Tong University;* [b] *Hagong Intelligent Robot Co., Ltd;* [c] *Laboratoire Vibrations Acoustique (LVA), University of Lyon, INSA-Lyon*

14:20 **Microphone Array Method for Determining Noise Angular Energy Distribution on Building Envelopes**
Miodrag Stanojević, Miloš Bjelić, Dragana Šumarac Pavlović, Miomir Mijić and Tatjana Miljkovic
University of Belgrade

14:40 **Modal Analysis for Damage Detection in Structures by Non-contact Measurements with a Commercial Microphone Array**
Olaf Bölke[a], Jan Heimann[a] and Joquin Garcia[b]
[a] *gfai tech GmbH;* [b] *Universidad Nacional de Tres de Febrero - UNTREF*

15:00 Analysis of the Sound Field in a Room Using Dictionary Learning
Manuel Hahmann[a], Samuel Arturo Verburg[b] and Efren Fernandez-Grande[b]
[a] *DTU Elektro Acoustic Technology;* [b] *Technical University of Denmark*

15:20 Acoustic transfer admittance of cylindrical cavities in infrasonic frequency range
Paul Vincent[a], Dominique Rodrigues[b], Franck Larsonnier[a], Cécile Guianvarc'H[b] and Stéphane Durand[c]
[a] *CEA;* [b] *Laboratoire Commun de Métrologie LNE-Cnam;* [c] *Laboratoire d'Acoustique de l'Université du Mans*

15:40 Alternating Least Squares-Based Joint Estimation of RETFs and PSDs for Multi-Channel Speech Enhancement
Simon Doclo[a], Marvin Tammen[a] and Ina Kodrasi[b]
[a] *Dept. Medical Physics and Acoustics, University of Oldenburg;* [b] *Speech and Audio Processing Group, Idiap Research Institute*

03 D - Mechanisms of underwater hearing
Monday, September 9 | Lissabon 1
Chair: M. Wahlberg

16:00 Comparing pressure and intensity units for in-air and underwater hearing thresholds
Magnus Wahlberg
University of Southern Denmark

16:20 Evolution of Cetacean Underwater Hearing Mechanisms: Similarities and Differences between Archaeocetes, Mysticetes, and Odontocetes
Sirpa Nummela
University of Helsinki

16:40 The Tympanic Ear as an Efficient Underwater Sound Transducer
Jakob Christensen-Dalsgaard
University of Southern Denmark

17:00 Late Evoked Potentials in Porpoises Speaks Against a Per- Click View of Echolocation, but Suggest Potential for Electrophysiological Audiograms at Low Frequencies
Kristian Beedholm[a], Peter Teglberg Madsen[a], Michael Ladegaard[a] and Peter Lloyd Tyack[b]
[a] *Aarhus University;* [b] *University of St. Andrews*

17:20 The Cormorant Ear - Adapted to Underwater Hearing?
Ole Næsbye Larsen, Magnus Wahlberg and Jakob Christensen-Dalsgaard
University of Southern Denmark

17:40 Underwater Sound Localization using Internally Coupled Ears (ICE)
Leo van Hemmen[a] and Anupam Prasad Vedurmudi[b]
[a] *Physik Department, TU München;* [b] *Technische Universität München*

20 W - General Room acoustics
Monday, September 9 | Lissabon 2
Chairs: M. Rychtarikova, L. Kritly

13:20 **Calculating the Speech Transmission Index in fluctuating noise: a data-driven approach in the short-term implementation**
Nicola Prodi and Chiara Visentin
Department of Engineering, University of Ferrara

13:40 **Multidimensional Visual Cluster Analysis of Room Acoustical Parameter Values as Means to gain Scientific Insights and Design / Consulting Tool**
Klaus-Hendrik Lorenz-Kierakiewitz[a], Benjamin Pfändner[a], Christoph Reuter[b] and Stefan Ostrowski[c]
[a] *Peutz Consult GmbH;* [b] *University of Vienna, Institute of Musicology;* [c] *admost Ostrowski*

14:00 **Acoustics of Multipurpose Halls in Croatia**
Marko Horvat and Kristian Jambrošić
Faculty of Electrical Engineering and Computing, University of Zagreb

14:20 **Acoustics features of sports facilities on the example of FIFA 2018 football stadiums in Russia**
Anton Peretokin[a], Anatoly Livshits[a], Alexey Orlov[b] and Natalia Shirgina[a]
[a] *Acoustic Group, Moscow;* [b] *Arena Project Institute, Moscow*

14:40 **Perceptual comparison of measured, modeled and simulated OBRIRs for virtual human echolocation**
Annika Neidhardt and Christian Schneiderwind
TU Ilmenau

15:00 **Echoidentification: Using reflected sound to identify objects and their characteristics**
Dawn Anderson and Sarahelizabeth Baguhn
Western Michigan University

15:20 **Acoustics inside a gypsum sphere with 7 m of diameter**
Ernesto Accolti and Fernando Di Sciascio
Instituto de Automática, National University of San Juan and National

06 B - Archeoacoustics
Monday, September 9 | Lissabon 2
Chairs: B. Boren, A. Andreopoulou

15:40 Acoustic effects at prehistoric landscapes: an archaeoacoustics analysis of rock art sites from Western Mediterranean
Margarita Díaz-Andreu[a], Angelo Farina[b], Enrico Armelloni[c], Laura Coltofean[d], Mathieu Picas[d] and Tommaso Mattioli[d]
[a] *ICREA and University of Barcelona;* [b] *University of Parma;* [c] *AIDA Srl - Spinoff Company of University of Parma;* [d] *University of Barcelona*

16:00 From Methodology to Archaeoacoustics in the Time of Scripture: Complex Dialogue Between Archaeological Evidence, Texts from Scholars and Written Mentions
Jean-Christophe Valiere[a], Estèle Dupuy[b] and Bénédicte Bertholon[c]
[a] *CNRS - UPR 3346 - Univ. Poitiers;* [b] *FORELLIS EA 3816 - Université de Poitiers;* [c] *CESCM - CNRS - Unversité de Poitiers*

16:20 A case of archaeological evidence in favour of acoustical intentions linked with pots in church vaults: Montivilliers Abbey
Jean-Dominique Polack[a], Jean-Christophe Valiere[b], Bénédicte Bertholon[c] and Pauline Carvalho[b]
[a] *Sorbonne Université, UMR CNRS 7190, Institut Jean le Rond d'Alembert;* [b] *CNRS - UPR 3346 - Univ. Poitiers;* [c] *CESCM - CNRS - Unversité de Poitiers*

17:00 Virtual reconstructions of the Théâtre de l'Athénée for archeoacoustic study
David Poirier-Quinot[a], Barteld N. J. Postma[b] and Brian F. G. Katz[a]
[a] *Sorbonne Université, CNRS, Institut d'Alembert;* [b] *Gartenmann Engineering AG*

17:20 Acoustic Simulation of Elizabeth I's Speech at Tilbury
Braxton Boren
American University, Washington

17:40 Architectural correlates of numinous responses to sound
David Lubman
DL Acoustics, Westminster (USA)

02 C - Acoustic Scene Analysis: Fundamentals and Applications
Monday, September 9 | Amsterdam
Chairs: S. van de Par, S. Doclo

13:20 Binding of speech syllables when segregation occurs
Marion David[a], Mathieu Lavandier[b], Nicolas Grimault[c] and Andrew, J. Oxenham[d]
[a] *Uni. Oldenburg;* [b] *Université de Lyon, ENTPE, Laboratoire Génie Civil et Batiment;* [c] *Centre de Recherche en Neurosciences de Lyon;* [d] *Department of Psychology, University of Minnesota*

13:40 Musical scene analysis of hearing-impaired and normal- hearing listeners: a melody and instrument matching task
Kai Siedenburg[a], Saskia Röttges[a], Kirsten Wagener[b] and Volker Hohmann[a]
[a] *University of Oldenburg;* [b] *Hörzentrum Oldenburg GmbH & Hörtech gGmbH*

14:00 Comparative Study of Single-Channel Algorithms for Blind Reverberation Time Estimation
Heinrich Löllmann, Andreas Brendel and Walter Kellermann
Friedrich-Alexander University Erlangen-Nürnberg

14:20 The effect of room acoustics on audio event classification
Dimitra Emmanouilidou and Hannes Gamper
Microsoft Research

14:40 Deep network source localization and the influence of sensor geometry
Jörn Anemüller and Hendrik Schoof
University of Oldenburg

15:00 Virtual auditory scenes created by time reversal mirror technique
Georgina Alejandra Lizaso and Jorge Petrosino
Universidad Nacional de Lanus

26 A - Metrology

Monday, September 9 | Amsterdam
Chairs: A. Hurrell, G. Durando

15:20 Absorbing target for radiation force measurements below 1 MHz
Megan Jenkinson and Andrew Hurrell
Precision Acoustics Ltd, Dorchester (UK)

15:40 Frequency and Power Limits of an Ultrasound Radiation Force Balance Brush Target
Subha Maruvada
U.S. Food and Drug Administration

16:00 Validation of Reflectance-Based Fiber-Optic Hydrophones
Sam Howard and Claudio Zanelli
Onda, Sunnyvale (USA)

16:20 Measurement Parameters for the characterization of unfocused Extracorporeal Pressure Pulse Sources - Standardization of Biomedical Equipment
Friedrich Ueberle
Hamburg University of Applied Sciences

16:40 EURAMET EMPIR 18HLT06 RaCHy Project: Radiotherapy coupled with Hyperthermia (Induced by HITU)
Giovanni Durando[a], Piero Miloro[b], Volker Wilkens[c], Baki Karaboce[d], Jacco de Pooter[e], Gerard van Rhoon[f], Gail Ter Haar[g], Barbara Caccia[h], Antonello Spinelli[i], Antonia Denkowa[j] and Roeland Dijkema[k]
[a] *INRIM -Istituto Nazionale di Ricerca Metrologica-;* [b] *NPL -National Physical Laboratory-;* [c] *PTB -Physikalisch-Technische Bundesanstalt-;* [d] *TÜBITAK UME - TÜBITAK National Metrology Institute-;* [e] *VSL - Dutch National Metrology Institute-;* [f] *Erasmus University Medical Center;* [g] *ICR -Institute of Cancer Research-;* [h] *ISS -Istituto Superiore di Sanità-;* [i] *OSR -Ospedale San Raffaele-;* [j] *TU Delft -Delft University of Technology-;* [k] *VSPARTICLE B.V.*

21 E - Urban Sound Planning

Monday, September 9 | Amsterdam
Chairs: D. Botteldooren, L. Maffei

17:00 Dynamic approach for the study of the spatial impact of road traffic noise at peak hours
Arnaud Can[a], Pierre Aumond[a], Cécile Becarie[b] and Ludovic Leclercq[b]
[a] *IFSTTAR, CEREMA, UMRAE, Bouguenais (F);* [b] *IFSTTAR*

17:20 Interactive soundscape augmentation of an urban park in a real and virtual setting
Timothy van Renterghem[a], Kang Sun[a], Karlo Filipan[a], Kris Vanhecke[a], Toon de Pessemier[b], Bert de Coensel[b], Wout Joseph[b] and Dick Botteldooren[a]
[a] *Ghent University, Department of Information Technology, WAVES research group;* [b] *Ghent University*

17:40 The Potential of Being the Quiet Place of the Khans Courtyards in Istanbul Historic Peninsula
Gülşen Akın Güler[a], Aslı Özçevik Bilen[a], Massimiliano Masullo[b] and Luigi Maffei[b]
[a] *Eskisehir Technical University;* [b] *Università degli Studi della Campania*

21 K - Wind Turbine Noise

Monday, September 9 | K3
Chairs: S. Cooper, N. Timmermann

13:20 The use of Synthesised or Actual Wind Turbine Noise for Subjective Evaluation Purposes
Steven Cooper
The Acoustic Group, South Windsor, Australia

13:40 A Simplified Method for Determination of "Amplitude Modulation" of Audible and Inaudible Wind Turbine Noise
Steven Cooper
The Acoustic Group, South Windsor, Australia

14:00 A comparison of Inaudible Windfarm Noise and the Natural Environment Noise whilst Monitoring Brainwaves and Heart Rate
Steven Cooper
The Acoustic Group, South Windsor, Australia

14:20 Non-acoustic and acoustic variables associated with wind turbine noise annoyance
Jenni Radun and Valtteri Hongisto
Turku University of Applied Sciences

21 D - Soundscape indicators and modeling
Monday, September 9 | K3
Chairs: J. Kang, F. Aletta

15:20 Towards a Soundscape Surround Index
Tin Oberman[a], Kristian Jambrošić[b], Francesco Aletta[a] and Jian Kang[a]
[a] *University College London;* [b] *Faculty of Electrical Engineering and Computing, University of Zagreb*

15:40 Acoustic comfort evaluation in residential buildings: modeling associations of acoustic data to subjective responses.
Nikolaos-Georgios Vardaxis[a] and Delphine Bard-Hagberg[b]
[a] *Lund University, LTH, Acoustics;* [b] *Lund University*

16:00 A widened array of metrics (WAM) approach to characterizing urban soundscapes - the example in SALVE
Bryce Timothy Lawrence[a], Robynne Sutcliffe[b], Salman Ahmed[b], Susanne Moebus[b] and Dietwald Gruehn[a]
[a] *TU Dortmund;* [b] *Center for Urban Epidemiology*

16:20 Ambient Soundscape Assessment of Wind Parks
Tianhong Yu[a], Holger Behm[a], Ralf Bill[a] and Jian Kang[b]
[a] *University Rostock;* [b] *University College London*

16:40 Soundscape cost index: a case study in Aachen
Margret Sibylle Engel[a], Carmella Pfaffenbach[b] and Janina Fels[c]
[a] *RWTH Aachen University, Institute of Technical Acoustics;* [b] *RWTH Aachen, Geography Dep.;* [c] *Teaching and Research Area of Medical Acoustics, Institute of Technical Acoustics, RWTH Aachen University*

17:00 Soundscape Cognition for User Behavior in Urban Parks
Hyun In Jo[a], Jin Yong Jeon[a] and Jean-Dominique Polack[b]
[a] *Hanyang University;* [b] *Sorbonne Université, UMR CNRS 7190, Institut Jean le Rond d'Alembert*

17:20 Investigation on the restoration effect of soundscape in parks in high- density cities: Taking Lu Xun Park in Shenyang, China as an example
Yuan Zhang, Ruining Zhang and Ling Zhu
Shenyang Jianzhu University, China

17:40 **The Synthesis of Soundscape using Genetic Algorithm and Popular Songs**
Mia Suhanek, Sanja Grubeša, Ivan Djurek and Antonio Petošić
Faculty of EE and Computing, University of Zagreb

11 F - Natural means for noise abatement
Monday, September 9 | K4
Chair: K. Attenborough

13:20 **A review of natural means for noise abatement**
Keith Attenborough
The Open University, Milton Keynes (UK)

13:40 **The influence of organic matter on acoustical properties of soil**
Kamrun Suravi[a], Ho-Chul Shin[b], Keith Attenborough[a], Shahram Taherzadeh[a] and Richard Whalley[b]
[a] *The Open University, Milton Keynes (UK);* [b] *Rothamsted Research*

14:00 **Acoustic absorption of a living green wall - Parametric transducer and XYZ gantry measurement method**
Anna Romanova[a] and Kirill Horoshenkov[b]
[a] *University of Greenwich;* [b] *University of Sheffield*

14:20 **Sound Propagation in a Forest Based on 3D Multiple Scattering Theories**
Vladimir Ostashev[a], David Keith Wilson[a], Michael Muhlestein[a] and Keith Attenborough[b]
[a] *U.S. Army Engineer Research and Development Center;* [b] *The Open University, Milton Keynes (UK)*

14:40 **Sound Absorption by Tree Bark**
Mengmeng Li[a], Timothy van Renterghem[b], Jian Kang[c] and Dick Botteldooren[b]
[a] *Harbin Institute of Technology;* [b] *Ghent University, Department of Information Technology, WAVES research group;* [c] *University College London*

11 C - Noise sensor networks
Monday, September 9 | K4
Chairs: R.M. Alsina-Pagès, J.M. Navarro Ruiz

15:20 **Performance Analysis of the Acoustic Event Detector in the DYNAMAP's Rome suburban area**
Rosa Ma Alsina-Pagès, Francesc Alías, Joan Claudi Socoró and Ferran Orga
GTM - La Salle (URL)

15:40 **The Collation and Use of Data from Continuous Remote Monitoring Systems for the Control of Sound Emissions from a Large Industrial Noise Source**
Tim Procter[a] and Stephen Lyons[b]
[a] *Griffith University;* [b] *Umwelt (Australia) Pty Limited*

16:00 Estimation of Noise Immission Directivity using Small Microphone Array
Jurij Prezelj[a], Luka Čurović[a], Tadej Novaković[b] and Jure Murovec[a]
[a] *University of Ljubljana;* [b] *University of Ljubljana, Faculty of Mechanical Engineering*

16:20 Travel times in complex environments
Adrien Dagallier[a], Sylvain Cheinet[a], Daniel Juvé[b], Aurélien Ponte[c] and Jonathan Gula[c]
[a] *French-German Research Institute of Saint-Louis;* [b] *Université de Lyon, ECL, LMFA, UMR CNRS 5509;* [c] *Univ. Brest, CNRS, IRD, Ifremer, LOPS, IUEM*

03 W - General Animal Bioacoustics
Monday, September 9 | K4
Chairs: H. Wagner, J. Hildebrand, J. Christensen-Dalsgaard

17:00 Effects of traffic noise, land use types and ecotones on the distribution of resident birds in a natural reserve in the Ruhr area, Germany
Philipp Antoniou and Bryce Timothy Lawrence
Technische Universität Dortmund

17:20 Adaption to Bristish Standards to identify Construction Site Activity noise sources with the Potential to Cause Stress to Giant Pandas
Murray Snaith, Alessandro Rodriguez and Brett Marmo
Xi Engineering Consultants Ltd

25 A - Sound fields for special purposes and transducer design
Monday, September 9 | K5
Chair: U. Steinmann

13:20 Study of the sound field in thin polymer films induced by High-Intensity Focused Ultrasound
Coralie Koo Sin Lin[a], Marko Liebler[b] and Klaus-V. Jenderka[c]
[a] *TU Dresden / Robert Bosch GmbH;* [b] *Robert Bosch GmbH;* [c] *Physik, Sensorik und Ultraschalltechnik Hochschule Merseburg, FB INW*

13:40 Acoustic design principles for energy efficient excitation of a high intensity cavitation zone
Örjan Johansson, Taraka Rama Krishna Pamidi, Vijay Shankar and Torbjörn Löfqvist
Luleå University of Technology

14:00 Small-Sized Acoustic Resonators for Ultrasound in Air
Tobias Merkel[a], Jürgen Harpain[b], Norbert Gorenflo[a] and Jonas Stein[a]
[a] *Beuth Hochschule für Technik Berlin, Fachb. VII;* [b] *Fischer Elektronik Lüdenscheid*

14:20 Multifrequency ultrasonic transducers with spatially distributed stop band material
Johannes Henneberg[a], Simone Preuss[a], André Gerlach[b] and Steffen Marburg[c]
[a] *Technical University of Munich (TUM), Robert Bosch GmbH;* [b] *Robert Bosch GmbH;* [c] *Technical University of Munich (TUM)*

14:40 Ultrasonic sensor based on phononic crystals
Paul Wasmer, Jannis Bulling and Jens Prager
Bundesanstalt für Materialforschung und -prüfung

15:00 Design of Resonant Vacuum Pressure Sensor with CMUT for High Sensitivity and Linearity
Xiaoli Zhang, Lu Yu, Haixia Yu and Dachao Li
Tianjin University

15:40 Determination of frequency dependent Ultrasound Absorption by means of Radiation Force based Power Measurements
Tina Fuhrmann[a], Konrad Mehle[a], David Waltschew[a] and Klaus-V. Jenderka[b]
[a] *Hochschule Merseburg, FB INW;* [b] *Physik, Sensorik und Ultraschalltechnik Hochschule Merseburg, FB INW*

16:00 Effective modeling of elastic waves for haptic surface interaction
Sebastian Wöckel[a], Michael Simon[b] and Ulrike Steinmann[b]
[a] *ifak, Universität Magdeburg;* [b] *Otto-von-Guericke-Universität Magdeburg*

16:20 Vibro-tactile displays for stimulating surface impressions
Andreas Sebastian Schmelt[a], Eike Christian Fischer[b], Viktor Hofmann[a], Jens Twiefel[a] and Marc Christopher Wurz[b]
[a] *Institut für Dynamik und Schwingungen, Hannover;* [b] *Institut für Mikroproduktionstechnik, Garbsen*

17:00 Acoustic Holograms for Particle Assembly and Fabrication
Kai Melde, Zhichao Ma, Korbinian Pöppel and Peer Fischer
Max-Planck-Institut IS

17:20 Precise airborne sound field characterization using a miniaturized laser interferometer of 1 MHz bandwidth
Ryan Sommerhuber
Xarion Laser Acoustics GmbH

09.1 A - Measuring Annoyance: New approaches
Monday, September 9 | K6
Chairs: D. Schreckenberg, T. Yano

13:20 Noise Annoyance - What does it mean?
Paul David Hooper[a] and Ian H. Flindell[b]
[a] *Manchester Metropolitan University;* [b] *ISVR, Southampton*

13:40 **Measuring Noise Annoyance with Multiple Question Scales - an Overview**
Jördis Wothge
German Environment Agency

14:00 **Assessment of the impact of changes in noise exposure at an expanding airport by means of the multiple item aircraft noise annoyance scale (MIAS)**
Dirk Schreckenberg[a], Rainer Guski[b], Julia Haubrich[a] and Jan Spilski[c]
[a] *ZEUS GmbH;* [b] *Ruhr-University Bochum;* [c] *CCS (University of Kaiserslautern)*

14:20 **Forty-five years of surveys on annoyance from road traffic noise**
Truls Gjestland
SINTEF DIGITAL

14:40 **Laboratory Studies of Annoyance**
Sonoko Kuwano and Seiichiro Namba
Osaka University

15:20 **Perception of low-level Sound Sources in Everyday Situations**
Siegbert Versümer and Jörg Becker-Schweitzer
ISAVE, University of Applied Sciences Duesseldorf

15:40 **Community response to high-speed railway noise in Tianjin, China**
Lan Zhang and Hui Ma
Tianjin University

16:00 **Using mobile application to assess quality of acoustic and visual environment in relationship with aircraft noise**
Ferenc Marki[a], Catherine Lavandier[b], Dirk Schreckenberg[c] and Stephan Grossarth[c]
[a] *Budapest University of Technology and Economics (BME);* [b] *Université de Cergy-Pontoise;* [c] *ZEUS GmbH*

16:20 **Assessment of Short-term Annoyance due to Shooting Noise Using the Experience Sampling Method**
Stephan Grossarth and Dirk Schreckenberg
ZEUS GmbH

09.1 B - Intervention studies
Monday, September 9 | K6
Chairs: A.L. Brown, T. van Renterghem

16:40 **Comparing noise policies of 8 European cities using a noise intervention classification scheme**
Timothy van Renterghem[a], Hannelore Hernalsteen[a] and Alan Lex Brown[b]
[a] *Ghent University, Department of Information Technology, WAVES research group;* [b] *Griffith School of Environment, Griffith University, Australia*

17:00 **Are perceived noise control and its value related to behavioural determinants of residents' civic engagement? A cross-sectional study among older adults**
Natalie Riedel[a], Adrian Loerbroks[b], Joachim Scheiner[c], Susanne Moebus[d], Irene van Kamp[e], Thomas Claßen[f], Heike Koeckler[g] and Gabriele Bolte[a]
[a] *University of Bremen;* [b] *University of Düsseldorf;* [c] *TU Dortmund University;* [d] *Center for Urban Epidemiology;* [e] *Netherlands National Institute for Public Health and the Environment;* [f] *Centre for Health NRW;* [g] *HSG Applied University for Health Sciences*

17:20 **Soundscape approaches in urban planning: implications for an intervention framework**
Irene van Kamp[a], Alan Lex Brown[b] and Dirk Schreckenberg[c]
[a] *Netherlands National Institute for Public Health and the Environment;* [b] *Griffith School of Environment, Griffith University, Australia;* [c] *ZEUS GmbH*

17:40 **Road Traffic Noise Interventions: Development of a Method to Quantify their Effects on Annoyance and Sleep Disturbance on a Small Urban Scale**
Maud Dohmen[a], Maarten Hornikx[b] and Irene van Kamp[c]
[a] *Nelissen ingenieursbureau;* [b] *Eindhoven University of Technology;* [c] *Netherlands National Institute for Public Health and the Environment*

01 A - Physical aspects for active control of noise and vibration
Monday, September 9 | K7/8
Chairs: J. Cheer, C. Shi

13:20 **Effectiveness of ANC Partition with Film Speaker**
Yusuke Makiyama[a], Shun Hirose[a], Kohei Oto[b], Yusuke Komoto[b] and Yoshinobu Kajikawa[a]
[a] *Kansai University;* [b] *Nitto Denko Corporation*

13:40 **Feedforward Control of Fan Noise in Ducts using Multichannel Order-reduced Inverse Filters**
Mingsian R. Bai and Shin-Cheng Huang
National Tsing Hua University

14:00 **Integrated Simulation of Active Noise Cancellation using a Computational Fluid Dynamics Approach**
Arun Cherkkil, Vinod Narayanan and Nithin George
IIT Gandhinagar (India)

14:20 **Limits of Noise Control over Space**
Thushara Abhayapala, Jihui Zhang, Prasanga Samarasinghe and Wen Zhang
Abhayapala, Canberra, Australia

15:00 **Formation of local quiet zones using the length-limited parametric array loudspeaker**
Yue Wang, Ruicong Li, Chuang Shi and Youxin Li
UESTC, Chengdu, China

15:20 Robust stability and performance of local active control systems using virtual sensing
Stephen Elliott[a], C K Lai[a], Thibault Vergez[b] and Jordan Cheer[a]
[a] *ISVR, University of Southampton;* [b] *Ecole CENTRALE LYON*

15:40 Tonal active control of the power scattered by locally-reacting spheres using a small number of radiators near the surface
Mihai Orita, Stephen Elliott and Jordan Cheer
ISVR, University of Southampton

16:00 Synthesis of the Ineter by Direct Acceleration Feedback
Neven Alujević, Ivan Ćatipović, Marko Jokić and Hinko Wolf
University of Zagreb

08 B - Policy and regulation for recreational noise / noise in buildings
Monday, September 9 | K7/8
Chairs: S. Luzzi, C. Bartalucci, A. Di Bella

16:40 Long term monitoring of noise pollution in social gatherings places: time analysis and acoustic capacity as supports of management strategies
Enrico Gallo[a] and Louena Shtrepi[b]
[a] *Città di Torino - Area Ambiente;* [b] *Politecnico di Torino - DENERG*

17:00 Recreational Noise Management in Turkey
Nılgün Akbulut Coban[a], Sezer Kaya[a], Güray Doğan[b] and Mustafa Çoban[b]
[a] *Antalya Prov. Direc. of Env. and Urb.;* [b] *Akdeniz University*

17:20 Policies on Recreational Noise: an EU Overview and some Local Experiences
Chiara Bartalucci[a] and Sergio Luzzi[b]
[a] *University of Florence;* [b] *Vie en.ro.se. Ingegneria*

17:40 Revision of Chinese National Standard GB 50118 - Code for Design of Sound Insulation of Civil Buildings
Guojun Yan, Weibin Wu, Jie Lin, Chun Xu and Qiyuan Zhao
China Academy of Building Research

17 A - Aeroacoustics of fluid-structure interactions
Monday, September 9 | K9
Chairs: P. Baddoo, L. Ayton

13:20 An aeroacoustic investigation into the effect of self-oscillating trailing edge flaplets
Edward Talboys[a], Thomas Geyer[b] and Christoph Bruecker[a]
[a] *City, University of London;* [b] *BTU Cottbus-Senftenberg*

13:40 The suppressed sound of inhomogeneous flapping airfoils
Michael Weidenfeld and Eran Arad
Rafael, Haifa, Israel

14:00 Acoustic emission of aeroelastic vortex-gust interactions
Huansheng Chen and Justin Jaworski
Lehigh University

14:20 Aeroacoustic Evaluation of Low-Noise Wind Turbine Blade Tips
Michaela Herr[a], Claas-Hinrik Rohardt[a], Benjamin Faßmann[a], Jorge Pereira-Gomes[b] and Christina Appel[c]
[a] *DLR - German Aerospace Center;* [b] *DNW-NWB;* [c] *German Aerospace Center*

14:40 Acoustic scattering by a porous blade row
Peter Baddoo and Lorna Ayton
University of Cambridge

17 B - Propagation of acoustic waves in solid waveguides surrounded by liquid
Monday, September 9 | K9
Chair: I. Kuznetsova

15:40 Digital micro-laboratory application using surface acoustic wave devices
Jun Kondoh, Tomohiko Fukaya, Yota Terakawa, Sota Tsunogaya and Ren Ikeda
Shizuoka University

16:00 A study on the relationship between rock microstructure and wave disperson in carbonates and sandstones
Wei Cheng[a], Jing Ba[a] and Jose Carcione[b]
[a] *Hohai University;* [b] *Istituto Nazionale di Oceanografia e di Geofisica Sperimentale (OGS)*

16:20 Acoustic waves in piezoelectric plates in contact with gasoline
Iren Kuznetsova[a], Boris Zaitsev[b], Andrey Teplykh[b] and Anastasia Kuznetsova[a]
[a] *Kotelnikov IRE of RAS;* [b] *Kotelnikov IRE of RAS, Saratov branch*

17:00 Study of shear-horizontal waves in structure "piezoelectric - viscous and conductive liquid"
Vladimir Kolesov[a], Iren Kuznetsova[a], Vladimir Anisimkin[a], Zhenghua Qian[b] and Alena Gorbunova[a]
[a] *Kotelnikov IRE of RAS;* [b] *Nanjing University of Aeronautics and Astronautics*

17:20 Microstreaming patterns induced by shape modes of acoustically trapped bubbles
Sarah Cleve[a], Gabriel Regnault[a], Cyril Mauger[a], Claude Inserra[b] and Philippe Blanc-Benon[a]
[a] *Univ Lyon, École Centrale de Lyon, INSA de Lyon, CNRS, LMFA UMR 5509;* [b] *Univ Lyon, Université Lyon 1, Centre Léon Bérard, INSERM, LabTAU*

17:40 Nonlinear shear wave propagation to assess biomechanical properties in soft tissue
Juan Melchor[a], Guillermo Rus[a], Antonio Callejas[a], Inas Faris[a], Javier Naranjo[b] and Miguel Riveiro[a]
[a] *University of Granada;* [b] *University of Sevilla*

Sessions and Posters on Tuesday, 10 September

Keynote Tuesday
Tuesday, September 10 | Europa
Abstract: see page 58
Chair: Malte Kob

11:45 **Sounds of the human vocal instrument**
Shrikanth Narayanan
University of Southern California

Topic 02 - Posters: Audio signal processing (measurement, sensors, arrays)
Tuesday, September 10 | Poster Forum: 15:40-16:20 | Foyer

- **Design of Kronecker Product Beamformers with Cuboid Microphone Arrays**
  Xuehan Wang[a], Jacob Benesty[b], Gongping Huang[a], Jingdong Chen[a] and Israel Cohen[c]
  [a] *Northwestern Polytechnical university;* [b] *INRS-EMT, University of Quebec;* [c] *Israel Institute of Technology*
- **Impulse source localization with background noise in a reverberant environment by multiple sensors**
  Tiangang Wang[a], Yat-Sze Choy[b] and Jungang Zhang[a]
  [a] *China Academy of Space Technology;* [b] *The Hong Kong Polytechnic University*
- **On the detection quality of early room reflection directions using compressive sensing on rigid spherical microphone array data**
  Frank Schultz and Sascha Spors
  University of Rostock
- **Reducing Transfer Function Measurement in Local Sound Field Reproduction using Acoustic Modelling**
  Qiaoxi Zhu[a], Xiaojun Qiu[a], Philip Coleman[b] and Ian Burnett[a]
  [a] *University of Technology Sydney;* [b] *University of Surrey*
- **Control of Sound Pressure in Audible Spot using Parametric Speakers**
  Takumi Hakamata, Hiroyoshi Yamashita, Keisuke Watanabe, Kotaro Hoshiba, Takenobu Tsuchiya and Nobuyuki Endoh
  Kanagawa University
- **Left-right sound localization outside loudspeaker positions in stereo reproduction with parametric loudspeakers**
  Shigeaki Aoki, Kouki Ito, Kazuhiro Shimizu and Suehiro Shimauchi
  Kanazawa Institute of Technology

- **Pressure-matching-based 2D sound field synthesis with equivalent source array**
  Izumi Tsunokuni, Kurokawa Kakeru and Yusuke Ikeda
  Tokyo Denki University
- **Determination of Optimal Parameters Using Metaheuristics for the Sound Zone Generation by the Least-Squares**
  Kazuya Yasueda, Daisuke Shinjo and Akitoshi Kataoka
  Ryukoku University
- **Single-channel signal Features for Estimating Microphone Utility for Coherent Signal Processing**
  Michael Günther, Andreas Brendel and Walter Kellermann
  Friedrich-Alexander University Erlangen-Nürnberg
- **On the Use of Spherical Microphone Arrays in a Classical Musical Recording Scenario**
  Johann-Markus Batke
  HS Emden/Leer
- **A Target Direction Search Algorithm Based on Microphone Array**
  Xubin Liang, Difeng Sun, Tianqing Zhao, Liangyong Zhang, Houlin Fang and Fang Zhang
  Northwest Institute of Nuclear Technology
- **Automatic Choice of Microphone Array Processing Methods for Acoustic Testing**
  Ennes Sarradj, Gert Herold and Simon Jekosch
  TU Berlin, Technische Akustik
- **Wind noise removal from mixture with speech: Using Wiener filter and invariant frequency beamforming**
  Fan-Jie Kung
  National Tsing Hua University
- **A Maximum-Achievable-Directivity Beamformer with White-Noise-Gain Constraint for Spherical Microphone Arrays**
  Xi Chen[a], Gongping Huang[a], Jingdong Chen[a] and Jacob Benesty[b]
  [a] *Northwestern Polytechnical university;* [b] *INRS-EMT, University of Quebec*
- **Neural Network-based Broadband Beamformer with Less Distortion**
  Mitsunori Mizumachi
  Kyushu Institute of Technology
- **Estimating sound intensity from acoustic data captured by parallel phase-shifting interferometry**
  Fumihiko Imaeda, Risako Tanigawa, Kenji Ishikawa, Kohei Yatabe and Yasuhiro Oikawa
  Waseda University

- **Investigation into Transaural System with Beamforming Using a Circular Loudspeaker Array set at Off-center Position from the Listener**
  Yu Ito and Yoichi Haneda
  University of Electro-Communications

- **Subjective evaluation of Head-Related Transfer Functions reconstructed with Spatial Principal Component Analysis and their domain dependency**
  Shouichi Takane, Keisuke Sakamoto, Koji Abe, Kanji Watanabe and Masayuki Nishiguchi
  Akita Prefectural University

- **Adhoc method to Invert the Reassigned Time-Frequency Representation**
  Shristi Rajbamshi[a], Peter Balazs[b] and Nicki Holighaus[a]
  [a] *Institut für Schallforschung;* [b] *Acoustics Research Institute, Austrian Academy of Sciences*

- **Detection of clean time-frequency bins based on phase derivative of multichannel signals**
  Atsushi Hiruma, Kohei Yatabe and Yasuhiro Oikawa
  Waseda University

- **Column-Wise Update Algorithm for Independent Deeply Learned Matrix Analysis**
  Naoki Makishima[a], Norihiro Takamune[a], Daichi Kitamura[b], Hiroshi Saruwatari[a], Yu Takahashi[c] and Kazunobu Kondo[c]
  [a] *The University of Tokyo;* [b] *National Institute of Technology, Kagawa College,;* [c] *Yamaha Corporation*

- **Deep Clustering for Single-Channel Ego-Noise Suppression**
  Annika Briegleb, Alexander Schmidt and Walter Kellermann
  Friedrich-Alexander University Erlangen-Nürnberg

- **A Study on the Data Augment Method considering Room Transfer Functions for Acoustic Scene Classification**
  Minhan Kim and Lee Seokjin
  Kyungpook National University

- **Real-Time Audio Processing on a Raspberry Pi using Deep Neural Networks**
  Fotios Drakopoulos[a], Deepak Baby[a] and Sarah Verhulst[b]
  [a] *Department of Information Technology, Ghent University;* [b] *Ghent University*

- **Underwater Acoustic Recognition System for Detection of Low-altitude Moving Source**
  Tianqing Zhao, Xubin Liang, Difeng Sun, Fang Zhang and Deyu Sun
  Northwest Institute of Nuclear Technology

- **A Study on Separation Method Combined Gamma-Process Non-negative Matrix Factorization and Deep Learning.**
  Jomae Satoru, Kenko Ota and Hideaki Yoshino
  Nippon Institute of Technology

- **Detection of Boat Noise by a Convolutional Neural Network for a Boat Information System**
  Haruki Yamaguchi and Kenji Muto
  Shibaura Institute of Technology
- **Effective Method for Screening Discharged Battery Using Support Vector Machine and High- Resolution Acoustic Analysis**
  Tomoaki Magome and Kan Okubo
  Tokyo Metropolitan University
- **Gated convolutional neural network-based voice activity detection under high-level noise environments**
  Li Li, Kouei Yamaoka, Yuki Koshino, Mitsuo Matsumoto and Shoji Makino
  University of Tsukuba
- **Acoustic Remote Sensing for Irrigation Systems Control in Agriculture**
  Anna Radionova[a], Chandra Ghimire[b], Laura Grundy[b], Seth Laurenson[b], Stuart Bradley[a] and Valerie Snow[b]
  [a] *The University of Auckland;* [b] *AgResearch Ltd*
- **Sound Capture from Rolling-shuttered Visual Camera Based on Edge Detection**
  Koichi Terano, Hiroki Shindo, Kenta Iwai, Takahiro Fukumori and Takanobu Nishiura
  Ritsumeikan University
- **Designing Nearly Tight Window for Improving Time-Frequency Masking**
  Tsubasa Kusano, Yoshiki Masuyama, Kohei Yatabe and Yasuhiro Oikawa
  Waseda University
- **Noise-reducing Sound Capture Based on Exposure-time of Still Camera**
  Hiroki Shindo, Koichi Terano, Kenta Iwai, Takahiro Fukumori and Takanobu Nishiura
  Ritsumeikan University
- **Time-Variant Acoustic Front-End Measurements of Active Noise Cancellation Headphones**
  Johannes Fabry, David Hilkert, Stefan Liebich and Peter Jax
  RWTH Aachen University
- **DFT-Filterbanks with Spectral Refinement and its Comparison with Polyphase Filterbanks**
  Mohammed Krini
  Technische Hochschule Aschaffenburg
- **Optimal Design of Symmetric and Asymmetric Beampatterns with Circular Microphone Arrays**
  Xudong Zhao[a], Gongping Huang[a], Jacob Benesty[b] and Jingdong Chen[a]
  [a] *Northwestern Polytechnical university;* [b] *INRS-EMT, University of Quebec*

Topic 03 - Posters: Animal Bioacoustics
Tuesday, September 10 | Poster Forum: 15:40-16:20 | Foyer

- **New Aspects in Birdsong Recognition utilizing the Gabor Transform**
  Sven Heuer, Pavel Tafo, Hajo Holzmann and Stephan Dahlke
  Philipps-Universität Marburg

- **Applying Convolutional Neural Networks to the Analysis of Mouse Ultrasonic Vocalizations**
  Reyhaneh Abbasi[a], Peter Balazs[a], Anton Noll[a], Doris Nicolakis[b], Maria Adelaide Marconi[b], Sarah M. Zala[b] and Dustin J. Penn[b]
  [a] *Acoustics Research Institute, Austrian Academy of Sciences;* [b] *Konrad Lorenz Institute of Ethology, University of Veterinary Medicine*

- **From ground to air - New insights into the evolutionary origin of tympanic hearing in synapsids**
  Michael Laaß[a], Anupam Prasad Vedurmudi[b], Burkhard Schillinger[c] and Leo van Hemmen[d]
  [a] *TU München, FRM II;* [b] *TU München;* [c] *TU München, FRM II, Physik Department E21;* [d] *Physik Department, TU München*

Topic 04 - Posters: Building acoustics
Tuesday, September 10 | Poster Forum: 15:40-16:20 | Foyer

- **Acoustic Performance of Soundproof Ventilation Units installed in Dwelling Walls**
  Sohei Nishimura[a], Yuya Nishimura[a] and Thulan Nguyen[b]
  [a] *Kumamoto College of Technology;* [b] *Shimane University*

- **Acoustic regulations and design of the multipurpose hall and exhibition halls of the new Munch museum in Oslo.**
  Jannicke Olshausen
  Multiconsult Norge AS

- **Evolution of the Italian regulations on acoustic classification of buildings**
  Patrizio Fausti[a], Antonino Di Bella[b], Andrea Santoni[a], Fabio Scamoni[c] and Simone Secchi[d]
  [a] *Engineering Department, University of Ferrara;* [b] *University of Padova - Department of Industrial Engineering;* [c] *Construction Technologies Institute of the National Research Council of Italy;* [d] *University of Florence, Italy*

- **Speech privacy as a harmonizing factor in rating the sound insulation between dwellings**
  Miomir Mijić[a], Dragana Šumarac Pavlović[a], Miloš Bjelić[a] and Tatjana Miljković[b]
  [a] *University of Belgrade;* [b] *Faculty of Electrical Engineering, Belgrade*

- **Derivation of Frequency Dependent Time-Domain Boundary Conditions Based on In-Situ Surface Measurements and Model Fitting**
  Baltazar Briere de la Hosseraye[a], Huiqing Wang[a], Fotis Georgiou[a], Maarten Hornikx[a] and Philip W. Robinson[b]
  [a] *Eindhoven University of Technology;* [b] *Oculus & Facebook*

- **Sound Absorption of Brazilian wooden panels and their use as Building Components**
  Rodrigo Scoczynski Ribeiro[a], Márcio Henrique Avelar Gomes[a], Rosemara Santos Deniz Amarilla[a], Fernando Jun Hattori Terashima[b], Luis Henrique Santana[a], Rodrigo Catai[a] and Adalberto Matoski[a]
  [a] *Federal University of Technology, Curitiba;* [b] *Pontifícia Univ. Católica do Paraná*

- **Sound absorption provided by an impervious membrane/cavity/activated carbon arrangement**
  Veronica Marin and Jorge P. Arenas
  Univ. Austral of Chile

- **Acoustic properties of façade fragments of historical monuments**
  Lukas Vargic[a], Jana Gregorova[a] and Monika Rychtarikova[b]
  [a] *STU Bratislava;* [b] *KU Leuven, Faculty of Architecture*

- **Analysis of society response to the value of sound insulation in dwellings**
  Monika Rychtarikova[a], Andrea Vargová[b], Vojtech Chmelík[c] and Daniel Urbán[d]
  [a] *KU Leuven, Faculty of Architecture;* [b] *STU Bratislava, Department of Building Construction;* [c] *STU Bratislava;* [d] *CVTU Prague, Department of Physics, Faculty of Electrical Engineering*

- **Experimental study on sound absorption characteristics of granular material: Influence of lateral constraints of casing**
  Tsuruha Takumasa[a], Yoshinari Yamada[a], Makoto Otani[b] and Yasushi Takano[b]
  [a] *Takenaka Corporation;* [b] *Kyoto University*

- **Cellular automata modeling of propagation and absorption of acoustic waves in impedance tube**
  Meng Wang, Bo Zhang, Qiqi Chen, Liheng Wang and Yutian Bai
  School of Mechanical Engineering, Ningxia University, China

Topic 09 - Posters: Health effects of noise
Tuesday, September 10 | Poster Forum: 15:40-16:20 | Foyer

- **Influence evaluation of infrasonic/audible noise environment by using both of biological information and infrasound sensors in the vicinity of wind turbine facilities**
  Megumi Nagamatsu and Masa-Yuki Yamamoto
  Kochi University of Technology

- **Investigation of the unpleasantness of infrasound combined with audio sound using psychoacoustic scaling methods**
  Elisa Burke[a], Euginia Stederi[a], Stefan Uppenkamp[b] and Christian Koch[a]
  [a] *Physikalisch-Technische Bundesanstalt (PTB);* [b] *Medizinische Physik, Carl von Ossietzky Universität Oldenburg*
- **A study on the influence of noise and vibration on the living environment along the Hokuriku Shinkansen railway**
  Takashi Morihara[a], Shigenori Yokoshima[b] and Yasunao Matsumoto[c]
  [a] *National Institute of Technology, Ishikawa College;* [b] *Kanagawa Environmental Research Center;* [c] *Saitama University*
- **Influence of nocturnal noise on non-restorative sleep: Gender effects**
  Daniel Fong[a], Sha Li[a], Janet Wong[a], Bradley McPherson[a], Esther Lau[b], Lixi Huang[a] and Mary Ip[a]
  [a] *The University of Hong Kong;* [b] *The Education University of Hong Kong*
- **Finger pulse wave amplitude response during sleep to environmental noise**
  Branko Zajamsek, Gorica Micic, Kristy Lee Hansen and Peter Catcheside
  Flinders University
- **Studying Individual Noise Disturbance Using Long Term Ear-EEG (Electroencephalography) Recordings In Everyday Life**
  Martin Georg Bleichner
  University Of Oldenburg, Psychology
- **Examination of the Causal Relationship between Aircraft Noise Exposure, Noise Annoyance and Diagnoses of Depression Using Structural Equation Modelling**
  Sarah Leona Benz and Dirk Schreckenberg
  ZEUS GmbH, Hagen
- **Do ultrafine particles confound studies on noise and cardiovascular disease?**
  Anna Hansell[a], Anja Tremper[b], Jamie Soussan[c], Paolo Vineis[c], Gary Fuller[b] and John Gulliver[a]
  [a] *University of Leicester, UK;* [b] *Environmental Research Group;* [c] *MRC-PHE Centre for Environment and Health*

Topic 12 - Posters: Electro-acoustics and (3D) audio signal processing
Tuesday, September 10 | Poster Forum: 15:40-16:20 | Foyer

- **Spatial Principal Component Analysis of Head-Related Transfer Functions using their complex logarithms with unwrapping of phase**
  Shouichi Takane
  Akita Prefectural University
- **Variability of Head Related Transfer Functions across subjects**
  Maciej Jasiñski and Jan Zera
  Warsaw University of Technology

- **Active Control of Scattering Effects in 2.5D Multizone Reproduction**
  Junqing Zhang, Wen Zhang, Lijun Zhang and Mengyao Zhu
  China
- **Dynamic local sound field synthesis with multi-channel 1-bit signal reproduction system**
  Kurokawa Kakeru[a], Izumi Tsunokuni[a], Yusuke Ikeda[a] and Yasuhiro Oikawa[b]
  [a] *Tokyo Denki University;* [b] *Waseda University*
- **Design of a Constant Beamwidth Beamformer for the Parametric Array Loudspeaker**
  Chuang Shi and Ruyu Bai
  UESTC, Chengdu, China
- **Spectral-change Enhancement with prior SNR for the Hearing Impaired**
  Xiang Li[a], Xin Tian[b], Henry Luo[c], Jinyu Qian[d], Xihong Wu[a], Dingsheng Luo[a] and Jing Chen[a]
  [a] *Peking Univeristy;* [b] *Sonova China;* [c] *Unitron;* [d] *Sonova Canada*
- **Impact of Amplification on Speech Enhancement Algorithms Using an Objective Evaluation Metric**
  Zhuohuang Zhang, Donald S. Williamson and Yi Shen
  Indiana University Bloomington
- **De-reverberation using CNN for Non-Reference Reverberant Speech Intelligibility Estimation**
  Kazushi Nakazawa and Kazuhiro Kondo
  Yamagata University
- **On Non-Reference Speech Intelligibility Estimation Using DNN Noise Reduction**
  Hiroto Takahashi and Kazuhiro Kondo
  Yamagata University
- **Reverberant speech recognition with actual cochlear implants: verifying a pulsatile vocoder simulation method**
  Fanhui Kong[a], Xianren Wang[b], Xiangbin Teng[c], Nengheng Zheng[d], Guangzheng Yu[e] and Qinglin Meng[e]
  [a] *College of Information Engineering, Shenzhen University;* [b] *The First Affiliated Hospital, Sun Yat-Sen University;* [c] *Department of Neuroscience, Max-Planck-Institute for Empirical Aesthetics;* [d] *Shenzhen University;* [e] *Acoustics Lab, School of Physics, South China University of Technology*
- **Relationship between Drive Signal and Stability in MIDS Modulator**
  Shigeto Takeoka
  SHIZUOKA Institute of Science and Tech
- **Measurements of Current Noise and Distortion in Resistors**
  Youhei Miyaoka and Minoru Kuribayashi Kurosawa
  Tokyo Institute of Technology

- **Optimization of vented earpiece designs using the finite element method**
  Reinhild Roden[a], Nick Wulbusch[b], Florian Denk[c], Henning Schepker[d], Alexey Chernov[b], Simon Doclo[d] and Matthias Blau[a]
  [a] *Institut für Hörtechnik und Audiologie, Jade Hochschule, Oldenburg, Germany;* [b] *Universität Oldenburg;* [c] *Medizinische Physik & Cluster of Excellence Hearing4All, Universität Oldenburg;* [d] *Dept. Medical Physics and Acoustics, Univ. of Oldenburg*
- **Robust Long-distance Aerial Audio Data Hiding: Comparison between Amplitude Modulation-based Hiding and Bilateral Time-spread Echo Hiding**
  Akira Nishimura
  Tokyo University of Information Science

Topic 13 - Posters: Flow acoustics
Tuesday, September 10 | Poster Forum: 15:40-16:20 | Foyer

- **Comparison of Acoustic and Laryngeal Parameters between Healthy and Disordered Subjects**
  Patrick Schlegel[a], Stefan Kniesburges[b], Michael Döllinger[a], Stephan Dürr[a] and Anne Schützenberger[a]
  [a] *Division of Phoniatrics and Pediatric Audiology, University Hospital Erlangen;* [b] *University Hospital Erlangen*
- **Characterization of turbulence noise in breathy human phonation**
  Philipp Aichinger
  Medical University of Vienna
- **Aerodynamic and aeroacoustic optimization of a centrifugal fan with backward-curved blades by means of inverse design**
  Chris Eisenmenger[a], Stefan Frank[a], Hakan Dogan[b] and Martin Ochmann[b]
  [a] *HTW Berlin;* [b] *Beuth Hochschule für Technik Berlin*
- **Predicting Cooling Fan Noise by Numerical Conditions Using Compressible Large Eddy Simulation**
  Kimihisa Kaneko and Tsutomu Yamamoto
  Fuji Electric Co., Ltd.
- **Experimental Study on BTI Broadband Noise Reduction with Wavy Leading Edge for Sweep Blade**
  Weiyang Qiao, Xin Guo, Wenhua Duan, Fan Tong and Weijie Chen
  Northwestern Polytechnical University, School of Power and Wnergy
- **Aerofoil trailing edge self-noise reduction by Surface Mounted Attenuation Devices**
  Edvard Schroeder[a], Tze Pei Chong[a], M. Kamruzzaman[b], Jeremy Hurault[b] and Phillip Joseph[c]
  [a] *Brunel University London;* [b] *Vestas Technology UK Ltd;* [c] *Univ. of Southampton*

- **Study on relationship between the geometry of Leading and Trailing Edges of Airfoil and their Aeroacoustics Parameters at low Reynolds number**
  Joanna Kopania
  Lodz University of Technology
- **Methods of estimation of frequency spectrum and power of the sound generated by an unsteady flow through a sonic crystal**
  Viktor Hruska, Michal Bednarik and Milan Cervenka
  Czech Technical University in Prague

Topic 14 - Posters: Underwater acoustics - Part B
Tuesday, September 10 | Poster Forum: 15:40-16:20 | Foyer

- **DOA Estimation of Underwater Targets via Improved Monopulse Method with Sonar Array**
  Jiani Wu and Changchun Bao
  College of Meteorology & Oceanography, National Univ. of Defense Technology

Topic 15 - Posters: Numerical, computational and theoretical acoustics
Tuesday, September 10 | Poster Forum: 15:40-16:20 | Foyer

- **Characterising Nonlinearities in Acoustic Transfer path Measurements**
  Samira Mohamady[a] and Allahyar Montazeri[b]
  [a] *IAV GmbH;* [b] *Lancaster University*
- **Rotor Dynamics Analysis under Uncertainty in Lubricant Film**
  Xiaodong Sun, Kheirollah Sepahvand, Zhe Liu and Steffen Marburg
  Technical University of Munich (TUM)
- **In-plane Vibration and Tire Force Transmissibility owing to Tire Non-uniformity Defects**
  Zhe Liu[a], Kheirollah Sepahvand[a], Yintao Wei[b] and Steffen Marburg[a]
  [a] *Technical University of Munich (TUM);* [b] *Tsinghua University*
- **Calculation of wave propagation characteristics in pre- deformed periodic lattice frame structures via Spectral Element Method**
  Marius Mellmann[a] and Chuanzeng Zhang[b]
  [a] *Universität Siegen, Lehrstuhl für Baustatik;* [b] *Universität Siegen*
- **Metaheuristic optimisation of sound absorption performance of multilayered porous materials**
  Vivek Thaminni Ramamoorthy[a], Ender Ozcan[a], Andrew Parkes[a], Luc Jaouen[b] and François-Xavier Bécot[b]
  [a] *University of Nottingham;* [b] *Matelys*

- **Study on Simulation of Steady-state Sound Field Matrix in Complex Undersea Environment and Detection Sensitivity**
  Jun Suo, Yangyang Zhang and Simi Tang
  Naval Research Academy
- **A new local boundary integral equation method for meshless acoustic computations**
  Hakan Dogan and Martin Ochmann
  Beuth Hochschule für Technik Berlin
- **Physical realization of the radiation of complex multipoles**
  Rafael Piscoya and Martin Ochmann
  Beuth Hochschule für Technik Berlin
- **The SPECFEM package : an open-source and scalable wave propagation solver based on a spectral element method**
  Etienne Bachmann and Jeroen Tromp
  Princeton University
- **Comparison of characterization methods for rigid porous materials**
  Ferina Saati, Christian A. Geweth and Steffen Marburg
  Technical University of Munich (TUM)

20 H - Open Plan offices
Tuesday, September 10 | Europa
Chairs: V. Hongisto, A. Liebl

8:40 **Physiological, psychological and performance effects of office noise**
Jenni Radun, Valtteri Hongisto, Henna Maula, Ville Rajala, Darin Al-Ramahi and Mika Scheinin
Turku University of Applied Sciences

9:00 **A comparison of Cognitive Performance and Listening Effort test procedures**
Alexander Markus Dickschen[a], Andreas Liebl[b] and Stefan Bleeck[c]
[a] *Fraunhofer IBP;* [b] *HSD Hochschule Döpfer;* [c] *Institute of Sound and Vibration Research, University of Southampton*

9:20 **How Office Workers Cope with Distraction by Sounds in the Open Plan Office**
Sven Steps[a], Rianne Appel-Meulenbroek[a], Theo Arentze[a] and Remy Wenmaekers[b]
[a] *Eindhoven University of Technology;* [b] *Level Acoustics & Vibration*

9:40 **Liveliness as a design parameter for open plan offices**
Tom Bouwhuis and Theodoor Höngens
M+P consulting engineers

10:00 **Harmonizing Different Metrics for Speech Privacy**
Markus Müller-Trapet
National Research Council Canada

10:40 Objective and subjective assessment of acoustics in open-plan offices
Karin Loh, Eric Kurz and Janina Fels
Teaching and Research Area of Medical Acoustics, Institute of Technical Acoustics, RWTH Aachen University

11:00 ISO 3382-3: Necessary But Not Sufficient. A New Approach To Acoustic Design for Activity-Based-Working Offices
Jack Harvie-Clark[a], Felix Larrieu[a] and Cecilie Opsanger[b]
[a] *Apex Acoustics Ltd;* [b] *Multiconsult*

11:20 Comparison of models to predict the effect of background speech on work performance in open-plan offices
Tobias Renz
Renz Solutions GmbH

14:00 Evaluation of Measurement Uncertainties of the D2S in Open-Plan Offices
Lucas Lenne[a], Patrick Chevret[a] and Etienne Parizet[b]
[a] *INRS;* [b] *Laboratoire Vibrations Acoustique INSA-Lyon*

14:20 Effect of office screens on the spatial decay of sound pressure level in open-plan offices
Tobias Renz
Renz Solutions GmbH

14:40 How ISO 3382-3 Acoustic Parameter Values are affected by Furniture, Barriers and Sound Absorption in a Typical Open Plan Office
Remy Wenmaekers and Nicole van Hout
Level Acoustics & Vibration, Eindhoven

15:00 Variability in the ISO 3382-3 metrics based on repeated acoustic measurements in open-plan offices
Manuj Yadav, Densil Cabrera, James Love, Jungsoo Kim, Jonothan Holmes, Hugo Caldwell and Richard de Dear
The University of Sydney

15:20 Numerical and experimental evaluation of a working environment on the basis of a speech intelligibility mapping
Marcus Maeder and Steffen Marburg
Technical University of Munich (TUM)

16:20 A statistical analysis of noise sources in open plan offices
Dario D'Orazio[a], Elena Rossi[b], Domenico De Salvio[a] and Massimo Garai[a]
[a] *University of Bologna;* [b] *Univ. Bologna - Department of Industrial Engineering*

16:40 Influence of Active-Noise-Cancelling Headphones on Cognitive Performance and Employee Satisfaction in Open Space Offices
Benjamin Johannes Mueller[a], Andreas Liebl[b] and Noemi Martin[a]
[a] *Fraunhofer IBP;* [b] *HSD Hochschule Döpfer*

17:00 **If speech is the source of noise, how can the source be eliminated or reduced?**
Andreas Liebl[a], Noemi Martin[b] and Benjamin Johannes Mueller[b]
[a] *HSD Hochschule Döpfer;* [b] *Fraunhofer IBP*

17:20 **Labeling and exposition time affect subjective assessments of partial maskers for office noise**
Sabine Schlittmeier
RWTH Aachen University, Institute of Psychology

17:40 **Water-based sound masking - An experimental study in an open-plan office**
Valtteri Hongisto and Annu Haapakangas
Turku University of Applied Sciences

04 F - Advanced measurement techniques in building acoustics
Tuesday, September 10 | Brüssel
Chairs: A. Santoni, C. Hoeller, P. Fausti

8:40 **Measurement of the bending stiffness of masonry walls by using time-frequency analysis: Practical considerations and validation**
Charlotte Crispin and Christian Mertens
Belgian Building Research Institute (BBRI)

9:00 **Benchmarking of Methods for the Identification of Flexural Wavenumbers in Wooden Plates**
Federica Morandi[a], Olivier Robin[b], Luca Barbaresi[a], Massimo Garai[a], Noureddine Atalla[b], Nicolas Quaegebeur[b] and Patrice Masson[b]
[a] *University of Bologna;* [b] *Groupe d'Acoustique de l'Université de Sherbrooke*

9:20 **Using near-field acoustic measurements to characterise mechanical and acoustic properties of lightweight building structures**
Andrea Santoni[a], Patrizio Fausti[a] and Paolo Bonfiglio[b]
[a] *Engineering Department, University of Ferrara;* [b] *Materiacustica srl*

9:40 **Structural reverberation time measurements on WOODSOL prototype**
Simone Conta[a], Ulrich Simon[b] and Anders Homb[c]
[a] *NTNU, Department of Civil and Environmental Engineering;* [b] *Müller-BBM Acoustic Solutions GmbH;* [c] *SINTEF Building & Infrastructure*

10:20 **Bending wave based characterization of viscoelastic materials**
Max Miller[a], Sadeq Malakooti[b], Tahereh Taghvaee[c], Ning Xiang[d], Hongbing Lu[b] and Nicholas Leventis[c]
[a] *Rensselaer Polytechnic Institute;* [b] *University of Texas at Dallas;* [c] *Missouri Institute of Science and Technology;* [d] *Arch. Acoust. RPI, USA*

10:40 **An indirect method for the measurement of impact sound insulation**
Simon Bailhache[a], Stéphanie Colin[a] and Michel Villot[b]
[a] *CSTB;* [b] *MV-Expert, Grenoble*

11:00 Continuing Prediction of Heavy/Hard Impacts on Resilient Sports Floors in Existing Buildings
Matthew Golden and Faiz Musafere
Pliteq, Inc., Toronto

11:20 Structure-Borne Sound Isolation of Acoustic Test Chambers: In-Situ Validation
Abhay Rajmane
G+H Noise Control

14:00 Qualification of an Anechoic Chamber
Anthony Nash
Charles Salter Associates

14:20 Sound Absorption Measurement Method using Ensemble Averaging Technique: A Robust Method for Surface Impedance Including in-situ Applications
Otsuru Toru[a], Reiji Tomiku[a], Siwat Lawanwadeekul[a], Daiki Matsuoka[b] and Ryota Yoshimoto[b]
[a] *Oita University, Japan;* [b] *Graduate School of Oita University*

14:40 Measurement of Oblique-Incidence Absorption Coefficients of Various Types of Absorbing Materials in a Thin Chamber
Tetsuya Sakuma[a], Naohisa Inoue[a] and Yuta Sakayoshi[b]
[a] *The University of Tokyo;* [b] *Nippon Sheet Glass Environment Amenity*

15:00 Advanced Investigation Using The EApu Method on the Effect of Quantitation and Particle Size of Charcoal in Clay Bricks on Sound Absorption Coefficient
Siwat Lawanwadeekul, Otsuru Toru, Reiji Tomiku and Hiroyasu Nishiguchi
Oita University, Japan

15:20 A Measurement Technique of Sound Absorption Coefficient and Impedance Using an Impedance Tube and Two Cardioid Microphones
Kazuma Hoshi and Toshiki Hanyu
Nihon University

16:20 A new technique for measuring sound particle velocity and sound pressure using face-to-face cardioid microphones
Toshiki Hanyu and Kazuma Hoshi
Nihon University

16:40 Airflow Resistance Measurements between Room Temperature and 800 C
Thamasha Samarasinghe[a], Carl Hopkins[a], Gary Seiffert[b] and Jilly Knox[c]
[a] *Acoustics Research Unit, University of Liverpool;* [b] *University of Liverpool;* [c] *Morgan Advanced Materials Plc*

04 H - Insulating and absorbing materials made from renewables 1
Tuesday, September 10 | Brüssel
Chairs: F. Martellotta, V. Wittstock

17:00 **Experimental characterisation of absorbing materials made from renewables**
Volker Wittstock and Daniel Sgriess
Physikalisch-Technische Bundesanstalt

17:20 **Investigations regarding the Influence of Static Load and Airflow Resistance on the Measurement of Dynamic Stiffness**
Heinrich Bietz, Martin Schmelzer, Volker Wittstock and Spyros Brezas
Physikalisch-Technische Bundesanstalt, Braunschweig

17:40 **Insulation materials made of renewable raw materials for the sound insulation prognosis of building components**
Simon Mecking, Andreas Rabold and Anton Huber
Technical University of Appl. Sciences - Hochschule Rosenheim

04 A - Prediction methods for sound insulations 2
Tuesday, September 10 | Berlin 1
Chairs: J. Davy, C. Guigou-Carter

8:40 **Components of Variation in Reverberation Time Measurement - Part 2: Field Testing Rooms of Heavyweight Construction**
Bill Whitfield
noise.co.uk Ltd

9:00 **Airborne Sound Transmission Modeling of Walls based on Random Point Process Theory**
Cédric van Hoorickx[a] and Edwin Reynders[b]
[a] *KU Leuven;* [b] *Structural Mechanics Section, Dep. of Civil Engineering, KU Leuven*

9:20 **Prediction of the sound transmission loss of two-dimensional periodic structures with a hybrid framework**
Carolina Decraene[a], Edwin Reynders[b] and Geert Lombaert[a]
[a] *KU Leuven, Department of Civil Engineering;* [b] *Structural Mechanics Section, Department of Civil Engineering, KU Leuven*

9:40 **Acoustic topology optimization of the material distribution on a simply supported plate**
Jan van den Wyngaert[a], Mattias Schevenels[a] and Edwin Reynders[b]
[a] *KULeuven;* [b] *Structural Mechanics Section, Dep. of Civil Engineering, KU Leuven*

10:00 **Adaptation of the Equivalent-Fluid Model to the Additively Manufactured Acoustic Porous Materials**
Kamil C. Opiela and Tomasz G. Zielinski
Institute of Fundamental Technological Research of the Polish Academy of Science

04 D - Structure-borne sources in buildings
Tuesday, September 10 | Berlin 1
Chairs: A. Mayr, S. Schoenwald

10:40 **Single rig two-stage method for characterizing structure-borne sound sources in buildings**
Barry Marshall Gibbs
University of Liverpool, UK

11:00 **Experimental investigation of a single reception plate method to obtain two source quantities required to predict structure-borne sound transmission in buildings**
Fabian Schöpfer, Andreas Mayr and Ulrich Schanda
Technical University of Applied Sciences Rosenheim

11:20 **Prediction of Maximum Fast Time-Weighted Sound Pressure Levels from Time-Varying Structure-Borne Sound Sources in Heavyweight Buildings**
Steffi Reinhold[a], Carl Hopkins[a] and Gary Seiffert[b]
[a] *Acoustics Research Unit, University of Liverpool;* [b] *University of Liverpool*

14:00 **In-plane excitation of reception plates according to DIN EN 15657:2017**
Ulrich Schanda, Michael Hoßfeld, Fabian Schöpfer and Andreas Mayr
Technical University of Applied Sciences Rosenheim

14:20 **Extraction of high contributing sound of Air Handling Unit and noise reduction using transfer path analysis**
Takuya Hirao, Yosuke Miyamoto and Junji Yoshida
Osaka Institute of Technology

14:40 **Experimental Validation of a Finite Element Model for a Heavy Impact from the Standard Rubber Ball on a Timber Floor**
Xiaoxue Shen and Carl Hopkins
Acoustics Research Unit, University of Liverpool

15:00 **Structure-borne sound sources in timber buildings - prediction of machinery noise using measured transmission functions**
Fabian Schöpfer, Andreas Mayr and Ulrich Schanda
Technical University of Applied Sciences Rosenheim

16 C - Trends in health and safety in the musician's workplace with regard to sound exposure levels
Tuesday, September 10 | Berlin 1
Chairs: A. Schlesinger, J.M. Kimmich

16:20 **Face the Music: A 12 year study of the sound of performance and hearing of classical music**
Stephen Dance, Douglas John Shearer and Georgia Zepidou
London South Bank University

16:40 **The exposure of musicians to sound assessed by two-channel noise dosimetry**
Agnieszka Pietrzak and Jan Zera
Warsaw University of Technology

17:00 **Symphony Orchestra Musicians: Reduction of Sound Exposure by Physical Measures**
Remy Wenmaekers[a], Bareld Nicolai[b], Maarten Hornikx[b] and Armin Kohlrausch[b]
[a] *Level Acoustics & Vibration;* [b] *Eindhoven University of Technology*

17:20 **Dicriminability of high-resolution audio with regard to the quantization accuracy**
Masanobu Miura
Hachinohe Institute of Technology

17:40 **Reducing the sound exposure level in an orchestra pit by a set of tailored measures**
Anton Schlesinger[a], Martin Tschaikner[b], Martin Ochmann[b], Jan Michael Kimmich[c], Stefan Frank[c] and Axel Schlicksupp[d]
[a] *theapro theater projekte daberto + kollegen planungsgesellschaft mbh;* [b] *Beuth Hochschule für Technik Berlin;* [c] *HTW Berlin;* [d] *Deutsche Oper Berlin*

27 B - Audio for Mobile VR/AR
Tuesday, September 10 | Berlin 2
Chairs: D. Manocha, P.W. Robinson, A. Plinge

8:40 **The Use of Inertial Measurement Units in Virtual Reality Systems for Auralization Applications**
Kristian Jambrošić[a], Miljenko Krhen[a], Marko Horvat[a] and Tin Oberman[b]
[a] *Faculty of Electrical Engineering and Computing, University of Zagreb;* [b] *University College London*

9:00 **An Attention-Guided Algorithm for Improving the Performance of Acoustic Simulations**
Hanna Autio and Delphine Bard-Hagberg
Lund University

9:20 **Evaluation and comparison of novel music experiences in augmented reality**
Arto Juhani Lehtiniemi, Jussi Leppänen, Henri Toukomaa and Antti Eronen
Nokia Technologies

9:40 **Evaluation of the effect of head-mounted display on individualized head-related transfer functions**
Maria Cuevas-Rodriguez[a], David Lou Alon[b], Samuel Clapp[a], Philip W. Robinson[b] and Ravish Mehra[b]
[a] *Universidad de Malaga;* [b] *Oculus & Facebook*

10:00 **Spatial Upsampling of Sparse Head-Related Transfer Function Sets by Directional Equalization - Influence of the Spherical Sampling Scheme**
Johannes M. Arend and Christoph Pörschmann
Technische Hochschule Köln

10:20 **Perceptual Relevance of Speaker Directivity Modelling in Virtual Rooms**
Henning Steffens[a], Steven van de Par[b] and Stephan D. Ewert[c]
[a] *Carl von Ossietzky University, Acoustics group, Oldenburg, Germany;* [b] *University of Oldenburg;* [c] *Carl von Ossietzky University, Medical Physics, Oldenburg*

10:40 **Subjective Performance Criteria for Mixed-Reality Immersive Audio**
Jean-Marc Jot, Rémi Audfray, Justin Mathew and Dan Mauney
Magic Leap, Plantation (USA)

10 G - Aircraft noise
Tuesday, September 10 | Berlin 2
Chairs: C. Spehr, T. Geyer

11:00 **Aircraft noise: Conversion of an existing to a desired number of subtracks with identical lateral dispersion to obtain smooth noise contours**
Olivier Schwab
Empa, Swiss Federal Laboratories for Materials Science and Technology

11:20 **SonicBAT: Some Highlights and Subsequent Developments**
Victor W. Sparrow[a], Trevor Stout[a], Kevin Bradley[b] and Christopher Hobbs[b]
[a] *Penn State - University Park (USA);* [b] *KBRwyle*

14:00 **Calculation of the Fan Rotational Speed Based on Flyover Recordings for Improving Aircraft Noise Prediction Models**
Roberto Merino-Martinez, Mirjam Snellen and Dick G. Simons
Delft University of Technology

14:20 **Numerical and Experimental Investigation of the Turbofan First Booster Stage Tone Noise**
Victor Mileshin, Sergey Pankov and Anton Rossikhin
Central Institute of Aviation Motors, Moscow

10 F - Railway noise
Tuesday, September 10 | Berlin 2
Chairs: S. Lutzenberger, A. Kuijpers

14:40 **The Application of Dither for Suppressing Curve Squeal**
Wolfgang Kropp[a], Arthur Aglat[a], Jannik Theyssen[a] and Astrid Pieringer[b]
[a] *Chalmers University of Technology, Division of Applied Acoustics;* [b] *Chalmers, Applied Acoustics/CHARMEC*

15:00 **The Effects of Weather Conditions and Wheel Wear on Curve Squeal**
Thomas Maly[a], Florian Biebl[b] and Michael Ostermann[a]
[a] *Vienna University of Technology, IEW;* [b] *psiacoustic Umweltforschung und Engineering GmbH*

15:20 **Another Halving of Rail Freight Traffic Noise by Wheel Absorber**
Martin Fehndrich
Bochumer Verein Verkehrstechnik GmbH

16:20 **Pass-By Noise Source Identification for Railroad Cars using Array Measurements**
Hans Rudolf Graf and Christian Czolbe
Prose AG

16:40 **Rail roughness surveys - a tool for effective environmental noise control**
Lisette Mortensen[a] and Stig Junge[b]
[a] *Banedanmark;* [b] *Sweco Denmark A/S*

22 W - General Sound design
Tuesday, September 10 | Berlin 2
Chairs: A. Fiebig, K. Ohtomi

17:00 **Acoustic validation of calculation software for ducts, panels and room acoustics**
Chris van Dijk
Alara-Lukagro

17:20 **Scenarios for embedding AI in Acoustic Design. Exploiting applications at several design stages**
Andrea Giglio and Ingrid Paoletti
Polytechnic of Milan

18 D - Binaural models: Algorithms and applications
Tuesday, September 10 | Berlin 3
Chairs: P. Majdak, J. Braasch, M.T. Pastore

9:00 **A likelihood based decoding mechanism for two-channel localization models**
Jörg Encke[a], Werner Hemmert[b] and Mathias Dietz[a]
[a] *Universität Oldenburg;* [b] *Technische Universität München*

9:20 **Speech-in-noise performances in virtual cocktail party using different non-individual Head Related Transfer Functions**
Lorenzo Picinali[a], Maria Cuevas-Rodriguez[b], Daniel Gonzalez-Toledo[b] and Arcadio Reyes-Lecuona[b]
[a] *Imperial College London;* [b] *Universidad de Malaga*

9:40 **Information-based Source Localization with Distinct Binaural Cues**
Patrick Danes
LAAS-CNRS & Univ. Toulouse

10:20 **Human Perception of Dichotic High-Frequency Complex Sounds simulated with a two-channel Count Comparison Model**
Jonas Klug, Lisa Schmors, Go Ashida and Mathias Dietz
Universität Oldenburg

10:40 **Predicting Externalization of Anechoic Sounds**
Robert Baumgartner and Piotr Majdak
Acoustics Research Institute, Austrian Academy of Sciences

11:00 **Effects of Target Speech Distance on Auditory Spatial Attention in Noisy Environment**
Shuichi Sakamoto, Florent Monasterolo, Cesar Salvador, Zhenglie Cui and Yôiti Suzuki
Research Institute of Electrical Communication, Tohoku University

11:20 **Integrating interaural differences of time and level across frequencies and with each other in a precedence effect model**
M. Torben Pastore[a] and Jonas Braasch[b]
[a] *Arizona State University, USA;* [b] *Rensselaer Polytechnic Institute*

14:00 **On the evaluation of head-related transfer functions with probabilistic auditory models of human sound localization**
Michele Geronazzo[a], Roberto Barumerli[b] and Federico Avanzini[c]
[a] *Dept. of Architecture, Design, and Media Technology, Aalborg University;* [b] *Department of Information Engineering, University of Padova;* [c] *Department of Computer Science, University of Milano*

14:20 **Better Ear Listening with Recurrent Neural Networks for Speaker Separation**
Nils L. Westhausen and Bernd T. Meyer
Medizinische Physik & Cluster of Excellence Hearing4All, Universität Oldenburg

14:40 **A Binaural Model Predicting The Effect of Hearing Impairment and Noise Level on Speech Intelligibility**
Thibault Vicente[a], Mathieu Lavandier[b] and Jörg M. Buchholz[c]
[a] *Macquarie University/Univ. Lyon ENTPE;* [b] *Université de Lyon, ENTPE, Laboratoire Génie Civil et Batiment;* [c] *Macquarie University*

15:00 **Binaural Processing in a New Cochlear-Implant Paradigm Inserting Extra Pulses with Short Inter-Pulse Intervals**
Martin Lindenbeck, Piotr Majdak and Bernhard Laback
Acoustics Research Institute, Austrian Academy of Sciences

15:20 **Evaluation of an ILD-based hearing device algorithm using Virtual Sound Environments**
Ruksana Giurda[a], Laurent S. R. Simon[a], Hannes Wüthrich[b] and Norbert Dillier[a]
[a] *University Hospital Zürich;* [b] *Sonova AG*

16:20 **Multimodal simulation of textiles in virtual and augmented environments**
M. Ercan Altinsoy[a], Alican Alma[a], Annerose Braune[b], Sybille Krzywinski[c] and Frank Püschel[d]
[a] *Technische Universität Dresden, Lehrstuhl für Akustik und Haptik;* [b] *Technische Universität Dresden, Institut für Automatisierungstechnik;* [c] *Technische Universität Dresden, Institut für Textilmaschinen;* [d] *GFaI e.V.*

16:40 **The 3D Tune-In Toolkit: A C++ library for binaural spatialisation, and hearing loss/hearing aids emulation**
Arcadio Reyes-Lecuona[a], Maria Cuevas-Rodriguez[a], Daniel Gonzalez-Toledo[a], Carlos Garre[a], Ernesto De-La-Rubia-Cuestas[a], Luis Molina-Tanco[a], Angel Rodriguez-Rivero[a] and Lorenzo Picinali[b]
[a] *Universidad de Malaga;* [b] *Imperial College London*

18 L - How learning alters auditory processing: brainstem to cortex
Tuesday, September 10 | Berlin 3
Chairs: B. Chandrasekaran, L. Holt

17:00 **Promoting Efficient Sound Category Learning Using an Incidental Task**
Sung-Joo Lim
Boston University

17:20 **Speech sound training alters auditory processing in rats**
Crystal T Engineer
The University of Texas at Dallas

17:40 **Effects of Short-term Training on Attentional Modulation of Neural Phase**
Adam Tierney, Fred Dick and Aeron Laffere
Birkbeck College

02 D - Loudspeaker arrays and sound field control
Tuesday, September 10 | Lissabon 1
Chair: J. Ahrens

8:40 **Audio Spotlight using Subdivided AM Sideband Wave Delivery from Separate Ultrasonic Array Speakers**
Kazuhiro Kondo and Shinichiro Osanai
Yamagata University

9:00 **Evaluation of Thermal Runaway Control Based on Frequency Modulated Carrier Wave in Parametric Array Loudspeaker**
Kairi Mori[a], Masato Nakayama[b] and Takanobu Nishiura[a]
[a] *Ritsumeikan University;* [b] *Osaka Sangyo University*

9:20 **Three-dimensional Resonance Control Based on Spatial Wave Synthesis with Parametric Array Loudspeaker**
Shiori Sayama[a], Masato Nakayama[b] and Takanobu Nishiura[a]
[a] *Ritsumeikan University;* [b] *Osaka Sangyo University*

9:40 **Demodulation Distance Control Based on Analytic Model between Film Gaslens Depth and Demodulation Distance for Parametric Array Loudspeaker**
Toshihiro Fujii[a], Masato Nakayama[b] and Takanobu Nishiura[a]
[a] *Ritsumeikan University;* [b] *Osaka Sangyo University*

10:00 **Development of Multi-way Parametric Array Loudspeaker Using Multiplexed Double Sideband Modulation**
Yuting Geng[a], Yusei Nakano[a], Masato Nakayama[b] and Takanobu Nishiura[a]
[a] *Ritsumeikan University;* [b] *Osaka Sangyo University*

10:20 **Design of a directive source using the radiation mode method and a sound zone algorithm**
Manuel Melon[a], Maryna Sanalatii[b], Philippe Herzog[c], Régine Guillermin[c], Nicolas Poulain[b] and Jean Christophe le Roux[b]
[a] *LAUM / Le Mans Université;* [b] *CTTM;* [c] *LMA UMR CNRS 7031*

10:40 **Models of spherical and rectangular cuboid loudspeaker arrays**
Franz Zotter and Hannes Pomberger
Inst. f. Elektr. Musik u. Akustik, KUG, Graz

11:00 **Reproduction of Multichannel Audio by Frame Loudspeaker Array**
Yuta Kakuzaki and Akio Ando
University of Toyama

11:20 **Three-Dimensional Spatial Active Noise Control Based on Kernel-Induced Sound Field Interpolation**
Hayato Ito, Shoichi Koyama, Natsuki Ueno and Hiroshi Saruwatari
The University of Tokyo

14:00 On in situ beamforming in an automotive cabin using a planar loudspeaker array
Martin Bo Møller[a] and Martin Olsen[b]
[a] *Aalborg University / Bang & Olufsen;* [b] *Harman Lifestyle Audio*

14:20 Minimum Trap Separation for Acoustical Levitation Using Phased Ultrasonic Transducer Arrays
Carl Andersson and Jens Ahrens
Chalmers University of Technology

14:40 Spatial sound field reproduction using deep neural networks
Thushara Abhayapala and Hanchi Chen
Abhayapala, Canberra, Australia

15:00 2.5D Local Wave Field Synthesis of a Virtual Plane Wave Using a Time Domain Representation of Spherical Harmonics Expansion
Nara Hahn, Fieter Winter and Sascha Spors
University of Rostock

15:20 How the distance and radius of two circular loudspeaker arrays affect sound field reproductions and directivity controls
Yi Ren and Yoichi Haneda
University of Electro-Communications

16:20 The EMPAC High-Resolution Modular Loudspeaker Array for Wave Field Synthesis
Johannes Goebel
EMPAC Rensselaer Polytechnic Institute

16:40 A Field-Matching Method for Sound Field Synthesis for Large Scale Sound Reinforcement Systems
Elena Shabalina
d&b audiotechnik

17:00 Adjoint-based sound reinforcement in the time domain
Lewin Stein, Florian Straube, Jörn Sesterhenn, Stefan Weinzierl and Mathias Lemke
Technische Universität Berlin

17:20 Full scale outdoor concert adaptive sound field control
Jonas Brunskog[a], Franz Maria Heuchel[b], Diego Caviedes Nozal[c], Minho Song[c], Finn T. Agerkvist[a], Efren Fernandez-Grande[c] and Enrico Gallo[d]
[a] *Technical University of Denmark, Department of Electrical Engineering;* [b] *Technical University of Denmark, ACT;* [c] *Technical University of Denmark;* [d] *Città di Torino - Area Ambiente*

17:40 Adapting transfer functions to changes in atmospheric conditions for outdoor sound field control
Franz Maria Heuchel[a], Diego Caviedes Nozal[b], Efren Fernandez-Grande[b], Jonas Brunskog[c], Finn T. Agerkvist[c] and Peter Gerstoft[d]
[a] *Technical University of Denmark, ACT;* [b] *Technical University of Denmark;* [c] *Technical University of Denmark, Department of Electrical Engineering;* [d] *Marine Physical Laboratory , Scripps Institution of Oceanography*

20 C - Recent advances in sound absorption and diffusion of materials/devices
Tuesday, September 10 | Lissabon 2
Chairs: P. D'Antonio, T. Cox

8:40 Design of a New Testing Chamber to Determine the Absorption, Diffusion and Scattering Coefficients
Peter D'Antonio[a], Mélanie Nolan[b], Efren Fernandez-Grande[c] and Cheol-Ho Jeong[c]
[a] *RPG Acoustical Systems, LLC;* [b] *DTU Electrical Engineering, Acoustic Technology;* [c] *Technical University of Denmark*

9:00 3D Printed Quadratic Residue Metadiffuser - Design and Measurements of an Optimized Deep-Subwavelength Sound Diffuser
Eric Ballestero[a], Vicente Romero García[b], Noé Jiménez[c], Jean Philippe Groby[b], Stephen Dance[d] and Haydar Aygun[a]
[a] *London South Bank University, The Acoustics Group;* [b] *Laboratoire d'Acoustique de l'Université du Mans, UMR CNRS 6613;* [c] *Instituto de Instrumentación para Imagen Molecular I3M-CSIC;* [d] *London South Bank University*

9:20 Beyond phase grating diffusers using locally-resonant metamaterials
Noé Jiménez[a], Trevor Cox[b], Jean Philippe Groby[c] and Vicente Romero García[c]
[a] *Instituto de Instrumentación para Imagen Molecular I3M-CSIC;* [b] *University of Salford;* [c] *Laboratoire d'Acoustique de l'Université du Mans, UMR CNRS 6613*

9:40 Perfect acoustic absorption in deep sub-wavelength structures for the ventilation problems with degenerate resonators
Vicente Romero García[a], Noé Jiménez[b], Olivier Richoux[a], Georgios Theocharis[a], Jean Philippe Groby[a] and Vincent Pagneux[a]
[a] *Laboratoire d'Acoustique de l'Université du Mans, UMR CNRS 6613;* [b] *Instituto de Instrumentación para Imagen Molecular I3M-CSIC*

10:00 Pattern and Orientation of Diffusers in Rooms with an Absorbent Ceiling
Emma Arvidsson[a], Erling Nilsson[b], Delphine Bard-Hagberg[c] and Ola Karlsson[a]
[a] *Saint-Gobain Ecophon AB;* [b] *Saint-Gobain Ecophon;* [c] *Lund University*

10:40 Advances in diffusive surface design using 3D architectural parametric modeling programs
Louena Shtrepi
Politecnico di Torino - DENERG

11:00 Application of multi-objective optimization techniques to the design of sound diffusers
Javier Redondo[a], Juan M. Herrero[a], Luís Godinho[b], Ricardo Patraquim[b] and Trevor Cox[c]
[a] *Universidad Politécnica de Valencia;* [b] *ISISE, Dep. Civil Engineering, University of Coimbra;* [c] *University of Salford*

11:20 Room acoustic texture: a methodology for its quantification
Alejandro Bidondo and Leonardo Pepino
UNTREF University, Argentina.

14:00 Anisotropic sound fields in reverberation-room measurements of sound absorption coefficients: Wavenumber spectrum theory
Mélanie Nolan
DTU Electrical Engineering, Acoustic Technology

14:20 Sound Absorption of Thin Resonators including a Winding Neck Extension in Surface Panel
Shinsuke Nakanishi
Hiroshima Institute of Technology

20 D - Acoustics of cultural heritage buildings 1

Tuesday, September 10 | Lissabon 2
Chairs: F. Martellotta, S.G. Zühre

14:40 Unveiling the acoustics of the Cathedral of Santiago de Compostela using 3D impulse responses
Francesco Martellotta[a], Angel Alvarez-Corbacho[b], Lidia Alvarez-Morales[c], Francesca Balestra[a], Federica Ciani[a], Miguel Galindo Del Pozo[d], Juan José Gomez Alfageme[e] and Pedro Fernando Nogueira Lopez[f]
[a] *DICAR-Politecnico di Bari;* [b] *University of Seville, IUACC;* [c] *University of York, TFTV;* [d] *Dpto. Física Aplicada II, E.T.S. Arquitectura, Universidad de Sevilla;* [e] *Universidad Politécnica de Madrid;* [f] *Departamento de Física y Ciencias de la Tierra,Universidade da Coruña*

15:00 Mapping the acoustics of Ripon cathedral
Lidia Alvarez-Morales[a], Mariana Lopez[a], Angel Alvarez-Corbacho[b] and Pedro Bustamante[b]
[a] *University of York, TFTV;* [b] *University of Seville, IUACC*

15:20 Acoustics of Portuguese Romanesque churches
Antonio Carvalho and Francisco Pereira
Univ. Porto, Portugal

16:20 **The Difficult Compromise between Conservation and Modern Functions of Heritage Buildings; the Case of the Restoration of the "Abbaye des Anges" and its 110 Acoustic Pots**
Jean-Christophe Valiere[a], Karin le Tyrant[b], Michel le Gentil[c], Bénédicte Bertholon[d]
[a] *CNRS - UPR 3346 - Univ. Poitiers;* [b] *Atelier Indépendant d'Acoustique (AIDA);* [c] *Céramique;* [d] *CESCM - CNRS - Unversité de Poitiers*

16:40 **Acoustics Timeline of Hagia Sophia and Süleymaniye Mosque in Istanbul**
Zuhre Su Gul
Bilkent University, Ankara

17:00 **Acoustical and Architectural History of the Thomaskirche in Leipzig**
Braxton Boren and Jack Anthony
American University, Washington (USA)

17:20 **UNESCO Wooden Churches of Southern Lesser Poland**
Pawel Malecki
AGH University of Science and Technology, Krakow

17:40 **A Virtual Acoustic Restitution of St John's Baptistery in Pisa**
Anna Rovigatti[a], Elena Rossi[b], Giulia Fratoni[b], Dario D'Orazio[c] and Massimo Garai[c]
[a] *University of Bologna - Interdepartmental Centre for Industrial Research;* [b] *University of Bologna - Department of Industrial Engineering;* [c] *Univ. of Bologna*

12 C - Speech processing for normal-hearing and hearing-impaired listeners

Tuesday, September 10 | Amsterdam
Chairs: J. Li, Q. Meng

8:40 **Acoustically transparent sound presentation in hearing devices: algorithms, devices and models**
Simon Doclo[a], Henning Schepker[a], Florian Denk[b], Reinhild Roden[c], Matthias Blau[c] and Birger Kollmeier[b]
[a] *Dept. Medical Physics and Acoustics, University of Oldenburg;* [b] *Medizinische Physik & Cluster of Excellence Hearing4All, Universität Oldenburg;* [c] *Institut für Hörtechnik und Audiologie, Jade Hochschule, Oldenburg, Germany*

9:00 **Cochlear-Implanted Children's Perception of Mandarin Tones in Normal Speech and Whispered Speech**
Xin Ding and Wentao Gu
Nanjing Normal University

9:20 **How the temporal amplitude envelope of speech contributes to urgency perception**
Masashi Unoki[a], Miho Kawamura[a], Maori Kobayashi[a], Shunsuke Kidani[a] and Masato Akagi[b]
[a] *Japan Advanced Institute of Science an;* [b] *JAIST, Japan*

9:40 **Restoring Lost Speech Components with Generative Adversarial Networks for Speech Communications in Adverse Conditions**
Nengheng Zheng[a], Yupeng Shi[a], Yuyong Kang[a] and Qinglin Meng[b]
[a] *Shenzhen University;* [b] *Acoustics Lab, School of Physics, South China University of Technology*

10:20 **Vocal Emotion Recognition in Mandarin-Speaking Cochlear Implanted Children**
Haitao Guan and Wentao Gu
Nanjing Normal University

10:40 **Intelligent background sound event detection and classification based on WOLA spectral analysis in hearing devices**
Feifan Lai[a] and Kaibao Nie[b]
[a] *University of Washington, Bothell;* [b] *University of Washington, USA*

11:00 **Maximum Expanded Measurement Uncertainty: Hearing Aids**
Zemar Martins Defilippo Soares, Isabella Florêncio Cruz Da Silva and Nelson Mello Do Espírito-Santo
Inmetro, Brazil

11:20 **A pilot study of the relationship between mandarin chinese word and sentence recognition for the elderly**
Jianxin Peng, Jiazhong Zeng and Jiamin Liu
South China University of Technology

15 B - Numerical methods for acoustic materials and metamaterials
Tuesday, September 10 | Amsterdam
Chairs: O. Dazel, P. Göransson

14:00 **Uncertain acoustic meta-atoms**
Felix Kronowetter and Steffen Marburg
Technical University of Munich (TUM)

14:20 **Modeling sound transmission through a periodic acoustic metamaterial grating of finite size**
Xiang Yu, Fangsen Cui and Wei Hin Mark Wong
*IHPC, A*STAR, Singapore*

14:40 **Development of a metamaterial for acoustic and architectonical improvement of window design.**
Gioia Fusaro[a], Xiang Yu[a], Fangsen Cui[a] and Jian Kang[b]
[a] *IHPC, A*STAR, Singapore;* [b] *University College London*

15:00 **Prediction of oblique incidence sound absorption coefficient for microfiber sound absorber**
Tatsuhiro Komito[a], Senji Kitahara[a] and Toshimitsu Tanaka[b]
[a] *Sekiso Corporation;* [b] *Kanagawa University*

15:20 Off-line Envelope Estimation for Acoustic Screens with Uncertain Properties
Mathieu Gaborit[a], Olivier Dazel[b] and Peter Göransson[c]
[a] *LAUM UMR CNRS 6613, Le Mans Université, France / MWL, KTH, Stockholm, Sweden;* [b] *Laboratoire d'Acoustique de l'Université du Maine, UMR 6613;* [c] *MWL, KTH Royal Institute of Technology*

15:40 Double Reflections from corrugated surfaces
Jorge Petrosino, Nicolas Casais Dassie, Damian Andres Fernández and Georgina Alejandra Lizaso
Universidad Nacional de Lanus

16:00 Finite element analysis on the surface characteristics of acoustic resonators with thermal and viscous boundary layers
Naohisa Inoue and Tetsuya Sakuma
The University of Tokyo

24 C - Vibro-acoustic behavior of structure under multi-field environments
Tuesday, September 10 | Amsterdam
Chairs: Yue-Ming Li, G. Chen

16:20 Vibro-acoustic Behavior of Plates Considering Static Load Effect
Yueming Li, Di Wang, Qian Geng, Xiongwei Yang and Lei Wu
Xi'an Jiaotong University

16:40 Mode conversion of elastic waves by using anisotropic metamaterials
Xiongwei Yang, Yueming Li and Gang Chen
Xi'an Jiaotong University

17:00 Assessing Engineered Materials via Non-Destructive Impact Acoustics
Yishan Dong, Shahram Taherzadeh, David Sharp and James Bowen
The Open University, Milton Keynes (UK)

17:20 Acoustic cloud based approach for Corona early detection on Hydropower Equipment
Jose Manuel Nieto Diaz[a], Paulo Teixeira[a] and Manuel A. Sobreira Seoane[b]
[a] *J.M. Voith SE & Co. KG;* [b] *AtlanTIC-Universidad de Vigo*

17:40 Analysis of SPL Reduction Possibilities Inside the WFI ATHENA Filterwheel Assembly
Wojciech Binek[a], Adam Pilch[a], Szymon Polak[b], Mirosław Rataj[b] and Tadeusz Kamisiński[a]
[a] *AGH University of Science and Technology, Krakow;* [b] *Space Research Centre Polish Academy of Sciences*

06 C - Philosophy in Acoustics
Tuesday, September 10 | K3
Chair: M. Gatt

8:40 **How does what we hear sound? The qualia problem in acoustics**
Michael Haverkamp
Independent Scientist

9:00 **Alexa, Siri and more: The impact of speech recognition on social behaviour and our responsibility as its creators**
Andrea Ebner
Technical University of Munich

9:20 **The inner voice**
Monika Gatt, Marcus Maeder and Steffen Marburg
Technical University of Munich (TUM)

21 B - Soundscapes of public spaces
Tuesday, September 10 | K3
Chairs: J. Hong, T. Oberman

9:40 **Towards soundscape indices**
Jian Kang, Francesco Aletta, Tin Oberman, M Erfanian, M Kachlicka, M Lionello and A Mitchell
University College London

10:00 **Prediction models of desirable levels of birdsong and water sound in a noisy environment: A laboratory experiment based on virtual reality**
Zhen-Ting Ong[a], Jooyoung Hong[a], Bhan Lam[a], Kenneth Ooi[a], Woon-Seng Gan[a], Samuel Jeong[b], Irene Lee[b] and Tse Tiong Tan[b]
[a] *Nanyang Technological University;* [b] *Building & Research Institute, Singapore*

10:20 **Evaluation of preferred levels of natural sounds in-situ environment through an augmented reality device**
Bhan Lam[a], Jooyoung Hong[a], Zhen-Ting Ong[a], Kenneth Ooi[a], Woon-Seng Gan[a], Samuel Jeong[b], Irene Lee[b] and Tse Tiong Tan[b]
[a] *Nanyang Technological University;* [b] *Building & Research Institute, Singapore*

11:00 **Passenger's Train Soundscape: Identification of Activities**
Nurul Hidayah, Gumilang Paramarta Saniskara, Nurfitriana Muharami, Keysha Wellviestu Zakri, Anugrah Sabdono Sudarsono and Sugeng Joko Sarwono
Institut Teknologi Bandung

11:20 **The relationship between activities and human perception in urban area**
Andini Hapsari, Helga Salim, Anugrah Sabdono Sudarsono and Sugeng Joko Sarwono
Institut Teknologi Bandung

14:00 Characteristics of urban soundscapes worthy of preservation
Yihong Jia[a], Jian Kang[b] and Hui Ma[a]
[a] *Tianjin University;* [b] *University College London*

14:20 VR Environment-based Evaluation of Impact Factors on the Urban Soundscape Recognition
Rosa Seo, Hyun In Jo and Jin Yong Jeon
Hanyang University

14:40 Characterization of the urban sound environment from commercial pedestrian streets: a first approach in São Paulo- Brazil.
Bruno Xavier Rego, Haryadne Carniel, Marcos Holtz and Graziela Caruso
Harmonia Acústica, Sao Paulo

15:00 Acoustic Vehicle Alerting Systems (AVAS) of electric cars and its possible influence on urban soundscape
Felix Laib[a] and J. Alexander Schmidt[b]
[a] *University of Duisburg-Essen;* [b] *University of Duisburg-Essen, City Planning and Urban Design*

15:20 Research on Soundscape Identification - A Case Study in Shenzhen, China
Yu Lei[a] and Jian Kang[b]
[a] *HIT Shenzhen Graduate School;* [b] *University College London*

07 B - (Invited) Speaker Panel on Science Communication
Tuesday, September 10 | K3 | 16:20
Chairs: T. Cox, K. Jones

18 F - Compensation strategies in cochlear implants
Tuesday, September 10 | K4
Chairs: M. Dietz, O. Macherey

8:40 Improving ITD coding with bilateral cochlear implants through temporal enhancement
Bernhard U. Seeber, Monika-Maria Oster and Aswin Wijetillake
Audio Information Processing, Technical University of Munich

9:00 Electrophysiological and Psychophysical Measures of Amplitude Modulation Discrimination Interference in Cochlear Implant Users
Deborah Vickers[a], Brian C. J. Moore[b], Patrick Boyle[c], Josef Schlittenlacher[b], Lindsey van Yper[d] and Jaime Undurraga[d]
[a] *University of Cambridge;* [b] *Auditory Perception Group, Dep. of Psychology;* [c] *Advanced Bionics GMBH;* [d] *Macquarie University*

9:20 **Spectral Blurring in Cochlear Implants: Association with Channel Interaction and Effects on Speech-in-Noise Perception**
Tobias Goehring[a], Julie G. Arenberg[b] and Robert P. Carlyon[a]
[a] *MRC-CBU, University of Cambridge;* [b] *Massachusetts Eye and Ear, Harvard Medical School*

9:40 **Coding of Electrical Stimulation Patterns for Binaural Signal Processing in Cochlear Implants**
Waldo Nogueira[a], Tom Gajecki[b], Reemt Hinrichs[c] and Jörn Ostermann[c]
[a] *Hannover Medical School (MHH);* [b] *Department of Otolaryngology, Hannover Medical School (MHH);* [c] *Institut für Informationsverarbeitung, Leibniz University Hannover (LUH)*

10:20 **Spatial Release From Masking in Bilateral Cochlear Implant Users listening to the Temporal Limits Encoder Strategy**
Alan Kan[a] and Qinglin Meng[b]
[a] *University of Wisconsin-Madison;* [b] *Acoustics Lab, School of Physics, South China University of Technology*

10:40 **Influence of asymmetric processing delays on the localization ability of bimodal CI/HA users**
Stefan Zirn[a], Julian Angermeier[a] and Thomas Wesarg[b]
[a] *Offenburg University of Applied Sciences;* [b] *University Medical Center Freiburg*

11:00 **Benefits and Challenges of Bimodal Hearing in Children**
Melissa Polonenko
University of Rochester, Medical Center

14 B - Sound propagation and Monitoring in Underwater Acoustics

Tuesday, September 10 | K4
Chairs: J. Abshagen, C. Zerbs

14:00 **Towards a Realistic Approach of Sound Propagation in EIAs: How to Represent Moving Sources and Moving Receivers**
Uwe Stöber[a], Lars O. Mortensen[b] and Frank Thomsen[b]
[a] *DHI WASY GmbH;* [b] *DHI A/S*

14:20 **A Computational Investigation into the Influence of the Shear Properties of the Seabed on Sound Propagation in Shallow Water.**
Ray Kirby[a] and Wenbo Duan[b]
[a] *University of Technology, Sydney;* [b] *Brunel University London*

14:40 **Three-dimensional acoustic parabolic equation model based on GPU processing**
Keunhwa Lee[a], Woojae Seong[b] and Youngnam Na[c]
[a] *Sejong Univ.;* [b] *Seoul National Univ.;* [c] *ADD - JINHAE, Korea*

15:00 The Analysis of Parabolic Equation Model Solutions using Split-Step/ Finite Difference Method
Mustafa Aslan
Independent Scholar, Dueren, Germany

15:20 Parallel implementation for Three-Dimensional Acoustic Field Computation in a Penetrable Wedge by Image Source Method
Wenbin Xiao[a], Yongxian Wang[b], Wei Liu[a], Qiang Lan[a], Xinghua Cheng[a], Zijie Zhu[a], Xin Wang[a], Ben Luo[a], Dezhi Wang[b], Jiani Wu[b] and Lilun Zhang[b]
[a] *National University of Defense Technology, Changsha, China;* [b] *College of Meteorology & Oceanography, National University of Defense Technology*

16:20 Sound propagation experiments in a Norwegian fjord
Jan Abshagen and Volkmar Nejedl
WTD 71, Eckernförde

16:40 An Underwater Vehicle Shape with Reduced Acoustic Backscatter
Tom Avsic
tkMS Kiel

17:00 Development of Underwater Acoustic Transducers
Yang Liu, Houlin Fang, Liangyong Zhang, Fang Zhang and Deyu Sun
Northwest Institute of Nuclear Technology, Xi'an

17:20 Analysis of Displacement Amplification Characteristics of Class IV Flextensional Shell Based on Elliptic Perimeter Approximation Formula
Houlin Fang[a], Difeng Sun[a], Fang Zhang[a], Yang Liu[a], Tianqing Zhao[a], Cheng Zhang[b], Liangyong Zhang[a], Xubin Liang[a] and Deyu Sun[a]
[a] *Northwest Institute of Nuclear Technology, Xi'an;* [b] *School of Mechanical Engineering, Southeast University*

17:40 Passive Ship Localization in a Shallow Water Using Pre-trained Deep Learning Networks
Dezhi Wang, Lilun Zhang, Changchun Bao, Shuqing Ma and Yongxian Wang
College of Meteorology & Oceanography, National University of Defense Technology, Changsha

13 B - Flow acoustics of the human phonation

Tuesday, September 10 | K5
Chairs: N. Henrich, M. Döllinger

8:40 Acoustic Source Term Interpolation in Hybrid Aeroacoustic Simulation of Human Phonation
Michael Weitz[a], Stefan Schoder[a], Paul Maurerlehner[a], Sebastian Falk[b], Michael Döllinger[c] and Manfred Kaltenbacher[a]
[a] *TU Wien;* [b] *Universitätsklinikum Erlangen;* [c] *Division of Phoniatrics and Pediatric Audiology, University Hospital Erlangen*

9:00 **Acoustic characterization of an averaged vocal tract model based on the MRI data of professional tenors**
Judith Probst[a], Alexander Lodermeyer[a], Sahar Fattoum[b], Matthias Echternach[c], Stefan Becker[a] and Stefan Kniesburges[d]
[a] *Institute of Process Machinery and Systems Engineering, University of Erlangen;* [b] *Division of Phoniatrics and Pediatric Audiology, University Hospital Erlangen;* [c] *Division of Phoniatrics and Pediatric Audiology, Universtiy Hospital Munich;* [d] *University Hospital Erlangen*

9:20 **Influence of the vocal tract on voice directivity**
Rémi Blandin[a] and Manuel Brandner[b]
[a] *Independant researcher;* [b] *Inst. f. Elektr. Musik u. Akustik, KUG, Graz*

9:40 **Finite Element Simulation of /asa/ in a Three-Dimensional Vocal Tract using a Simplified Aeroacoustic Source Model**
Marc Arnela and Oriol Guasch
La Salle - Universitat Ramon Llull

10:00 **Glottal Opening Measurements in VCV and VCCV Sequences**
Yves Laprie[a], Benjamin Elie[b], Angélique Amelot[c] and Shinji Maeda[c]
[a] *LORIA CNRS, Vandoeuvre-les-Nancy;* [b] *Institute of Mechanical Sciences and Industrial Applications (IMSIA);* [c] *Laboratoire de Phonétique et Phonologie, UMR7018 CNRS/Sorbonne-Nouvelle*

10:20 **Formation of stationary intraglottal vortices during phonation**
Liran Oren, Sid Khosla, Charles Farbos de Luzan, Alexandra Maddox and Ephraim Gutmark
University of Cincinnati

10:40 **Modeling the pre-phonatory vocal fold posture in the larynx model SynthVOICE**
Stefan Kniesburges[a], Reinhard Veltrup[b], Sahar Fattoum[c] and Anne Schützenberger[c]
[a] *Univ. Hospital Erlangen;* [b] *Univ. Hospital Erlangen, Otorhinolaryngology, Div. of Phoniatrics;* [c] *Div. of Phoniatrics and Pediatric Audiology, Univ. Hospital Erlangen*

13 C - Fan noise
Tuesday, September 10 | K5
Chairs: S. Moreau, S. Becker

11:00 **Analysis of Sound Source Localization in an Axial Fan**
Seyed Mohsen Alavi Moghadam, Matthias Meinke and Wolfgang Schröder
RWTH Aachen University

11:20 **Prediction Methodology of Broadband Noise from a Cooling Fan**
Soichi Sasaki
Nagasaki University

14:00 Numerical Investigation of Hydrodynamic/Acoustic Splitting Methods in Finite Volumes including Rotating Domains
Joscha Piepiorka and Otto von Estorff
Hamburg University of Technology

14:20 Vortex sound based calculations for the aeroacoustic noise of a centrifugal fan
Hakan Dogan[a], Martin Ochmann[a], Chris Eisenmenger[b] and Stefan Frank[b]
[a] *Beuth Hochschule für Technik Berlin;* [b] *HTW Berlin*

14:40 Experimental Investigation of the Influence of different Leading Edge Modifications on the Sound Emission of Axial Fans downstream of a Heat Exchanger
Felix Czwielong[a], Florian Krömer[a], Chaitanya Paruchuri[b] and Stefan Becker[a]
[a] *Institute of Process Machinery and Systems Engineering, University of Erlangen;* [b] *Engineering, University of Southampton*

15:00 Aeroacoustic Simulation and Experimental Validation of Sound Emission of an Axial Fan Applied in a Heat Pump
Andreas Lucius[a], Marc Schneider[a], Stefan Schweitzer-De Bortoli[b], Tom Gerhard[c] and Thomas Geyer[d]
[a] *ebm-papst Mulfingen GmbH & Co. KG;* [b] *Vaillant GmbH;* [c] *Federal-Mogul Friction Products GmbH;* [d] *BTU Cottbus-Senftenberg*

15:20 Experimental investigation of the noise reduction of a plug fan with leading-edge serrations
Ignacio Zurbano-Fernandez[a], Alain Guedel[b] and Mirela Robitu[b]
[a] *CETIAT/ECL, Villeurbanne;* [b] *CETIAT*

16:20 Computational Aeroacoustics of an Axial Fan with Leading Edge Serrations
Stefan Schoder[a], Florian Krömer[b], Michael Weitz[a], Manfred Kaltenbacher[a] and Stefan Becker[b]
[a] *TU Wien;* [b] *Inst. of Process Machinery and Systems Engineering, Univ. Erlangen*

16:40 Axial Ventilator Tip Gap Noise Prediction from Discontinuous Galerkin based CAA with Stochastic Vortex Sound Sources
Lev Liberson, Markus Lummer, Michael Mößner, Roland Ewert and Jan Werner Delfs
DLR - German Aerospace Center

17:00 Aeroacoustic evaluation of the forward-curved fan inlet flow
Jurij Gostiša, Tadej Novaković, Jurij Prezelj and Marko Hočevar
University of Ljubljana, Faculty of Mechanical Engineering

17:20 Influence of the Mesh Size on the Aerodynamic and Aeroacoustics of a Centrifugal Fan using the Lattice-Boltzmann Method
Rebecca Schaefer and Martin Boehle
University of Kaiserslautern, Institute of Fluid Mechanics and Fluid Machinery

17:40 **Research on Aerodynamic Noise Calculation and Noise Reduction Design of Multi-blade Centrifugal Fan**
Jin An Huang, Yang Xiang and Chaojun Jiang

09.1 C - Perception of and responses to infrasound and low-frequency sound including wind turbines
Tuesday, September 10 | K6
Chairs: S. Yokoyama, F. van den Berg

8:40 **How do audio and visual characteristics of wind turbines contribute to noise annoyance?**
Beat Schäffer[a], Reto Pieren[a], Ulrike Wissen Hayek[b], Nadine Biver[b] and Adrienne Grêt-Regamey[b]
[a] *Empa, Swiss Federal Laboratories for Materials Science and Technology;* [b] *ETH Zurich, Institute for Spatial and Landscape Development*

9:00 **Implementation Of The Issue Of Noise From Wind Turbines At Low Frequencies**
Martino Marini[a], Costantino Carlo Mastino[b], Roberto Baccoli[b], Andrea Frattolillo[c] and Antonino Di Bella[d]
[a] *University of Sassari;* [b] *University of Cagliari - Department of civil engineering, environmental and arch;* [c] *University of Cagliari;* [d] *University of Padova -Department of Industrial Engineering*

9:20 **Pilot study on perceived sleep acceptability of low-frequency, amplitude modulated tonal noise**
Kristy Lee Hansen, Phuc Nguyen, Branko Zajamsek, Gorica Micic and Peter Catcheside
Flinders University

9:40 **Epidemiological study on long-term health effects of low-frequency noise produced by wind power stations in Japan**
Tatsuya Ishitake[a], Yoshitaka Morimatsu[a] and Kunio Hara[b]
[a] *Kurume University, School of Medicine;* [b] *University of Occupational and Environmental Health, School of Health Science, Kitakyushu*

10:00 **Perception of low-frequency components contained in general environmental noises including wind turbines**
Sakae Yokoyama and Tomohiro Kobayashi
Kobayasi Institute of Physical Research

10:40 **How to present pure-tone infrasound to the ear**
Holger Joost[a], Björn Friedrich[b], Jesko Verhey[b] and Thomas Fedtke[a]
[a] *Physikalisch-Technische Bundesanstalt;* [b] *University of Magdeburg*

11:00 Frequency characteristics of oppressive and vibratory feeling to low-frequency sound
Makoto Morinaga[a], Ippei Yamamoto[a], Tomohiro Kobayashi[b], Koichi Makino[b], Hiroaki Ochiai[b] and Hideki Tachibana[c]
[a] *DFEIA, Tokyo;* [b] *Kobayasi Institute of Physical Research;* [c] *The University of Tokyo*

11:20 The effect of brown and black noise on persons suffering from a low frequency sound
Frits van den Berg and Karin de Boer
University of Groningen

14:00 Equal annoyance contours at frequencies 4 - 1000 Hz
Ville Rajala, Jarkko Hakala and Valtteri Hongisto
Turku University of Applied Sciences

14:20 Portable Infrasound Monitoring Device with Multiple MEMS Pressure Sensors
Ryouichi Nishimura, Zhenglie Chi and Yôiti Suzuki
Research Institute of Electrical Communication, Tohoku University

14:40 Infrasound research activities in Kochi University of Technology - Infrasound observation network by using multiple comprehensive infrasound sensors and its application for disaster mitigation as well as safe human life -
Masa-Yuki Yamamoto
Kochi University of Technology

09.1 F - Contribution of the number of events and other traffic conditions to annoyance
Tuesday, September 10 | K6
Chairs: R. Guski, M. Morinaga

15:00 Short-term annoyance from nocturnal aircraft noise in children: The influence of acoustical and non-acoustical factors
Julia Quehl[a], Susanne Bartels[a], Rolf Fimmers[b] and Daniel Aeschbach[a]
[a] *DLR - German Aerospace Center;* [b] *University of Bonn, Faculty of Medicine*

15:20 Noise-induced Annoyance due to Nocturnal Road Traffic: Results of a Field Study
Sarah Weidenfeld, Eva-Maria Elmenhorst, Sarah Sanok, Uwe Müller and Daniel Aeschbach
DLR - German Aerospace Center

16:20 Effects of The Number of Noise Events from SHINKANSEN Railway on Annoyance
Keiji Yagawa[a], Ayumi Shiotani[a], Toshihiko Matsui[a] and Takashi Yano[b]
[a] *Chuo Fukken Consultants Co., Ltd.;* [b] *Graduate school of Science and Technolody, Kumamoto University*

16:40 Leq + X: Re-Assessment of exposure-response relationships for aircraft noise annoyance and disturbances to improve explained variance
Julia Haubrich[a], Mark Brink[b], Rainer Guski[c], Ullrich Isermann[d], Beat Schäffer[e], Rainer Schmid[d], Dirk Schreckenberg[a] and Jean Marc Wunderli[e]
[a] *ZEUS GmbH;* [b] *Swiss Federal Office for the Environment;* [c] *Ruhr-University Bochum;* [d] *Deutsches Zentrum für Luft- und Raumfahrt (DLR);* [e] *Empa, Swiss Federal Laboratories for Materials Science and Technology*

17:00 Do we need different aircraft noise metrics to predict annoyance for different groups of people?
Jan Spilski[a], Kirstin Bergström[b], Ulrich Möhler[c], Thomas Lachmann[b] and Maria Klatte[b]
[a] *CCS (University of Kaiserslautern);* [b] *Technische Univ. Kaiserslautern;* [c] *Möhler + Partner Ingenieure AG*

09.2 C - Cardiovascular effects
Tuesday, September 10 | K6
Chairs: E. van Kempen, N. Riedel

17:20 Aircraft noise exposure and saliva cortisol in a pooled-analysis from seven European countries
Clémence Baudin[a], Marie Lefevre[a], Jenny Selander[b], Wolfgang Babisch[c], Ennio Cadum[d], Marie-Christine Carlier[e], Patricia Champelovier[f], Konstantina Dimakopoulou[g], Danny Huithuijs[h], Jacques Lambert[f], Bernard Laumon[i], Goran Pershagen[j], Töres Theorell[k], Venetia Velonaki[g], Anna Hansell[l] and Anne-Sophie Evrard[a]
[a] *IFSTTAR-UMRESTTE;* [b] *Institute of Environmental Medicine;* [c] *Private Consultant;* [d] *Agency for Health Protection;* [e] *Hospices Civils de Lyon;* [f] *IFSTTAR, AME-Laboratoire Transports Environnement;* [g] *University of Athens;* [h] *National Institute of Public Health and Environmental Protection;* [i] *IFSTTAR, Transport, Health and Safety Department;* [j] *Institute of Environmental Medicine, Karolinska Institute;* [k] *Stress Research Institute, Stockholm University;* [l] *University of Leicester, UK*

17:40 Association Between Transportation Noise and Cardio-metabolic Diseases: an Update of the WHO Meta-analysis
Danielle Vienneau, Ikenna Eze, Nicole Probst-Hensch and Martin Röösli
Swiss Tropical and Public Health Institute

11 E - Environmental sound auralisation
Tuesday, September 10 | K7/8
Chair: J. Forssén

8:40 **Future Low-Noise Aircraft Technologies and Procedures - Perception-based Evaluation using Auralised Flyovers**
Reto Pieren[a], Lothar Bertsch[b], Demian Lauper[a] and Beat Schäffer[a]
[a] *Empa, Swiss Federal Laboratories for Materials Science and Technology;* [b] *German Aerospace Center (DLR)*

9:00 **Auralization of Aircraft Noise in an Urban Environment**
Roalt Aalmoes[a], Maurits van der Veen[b] and Henk Lania[a]
[a] *Netherlands Aerospace Centre;* [b] *Utrecht University*

9:20 **Physically-Based Auralization of Railway Rolling Noise**
Julien Maillard[a], Abbes Kacem[a], Nadine Martin[b] and Baldrik Faure[c]
[a] *Building Science and Technology Center (CSTB);* [b] *University of Grenoble;* [c] *SNCF Innovation & Research*

9:40 **Recording-based Auralization of Train Noise in a Digital Urban Sound Planning Toolbox**
Krister Larsson[a], Jens Forssén[b], Peter Lundén[a], Xuetao Zhang[a] and Andrea Sandberg[a]
[a] *RISE Research Institutes of Sweden;* [b] *Chalmers University of Technology, Architecture and Civil Engineering*

10:20 **A Parametric Method to Synthesize Wind Turbine Sounds**
Pontus Thorsson
Akustikverkstan AB, Lidköping

10:40 **Analysing the Effectiveness of Approaches to Auralisation for Applications in Environmental Acoustics**
Alex Southern[a], Frank Stevens[b] and Damian Murphy[b]
[a] *AECOM Acoustics;* [b] *Audio Lab, Dep. of Electronic Engineering, University of York*

11:00 **Auralisations for Outdoor Noise Sources**
Per Finne[a], Erik Thysell[b] and Christian Weirum Claumarch[b]
[a] *DELTA Acoustics, Aarhus;* [b] *FORCE Technology*

11:20 **Audiovisual simulation inside the residential rooms of roadside buildings**
Asakura Takumi and Riku Hashimoto
Tokyo University of Science

14:00 **Traffic Flow Auralisation based on Single Vehicle Pass-by Noise Synthesis**
Yang Fu[a], Damian Murphy[a] and Alex Southern[b]
[a] *Audio Lab, Department of Electronic Engineering, University of York;* [b] *AECOM Acoustics*

14:20 **Progressive region-of-interest filtering for urban sound auralization applications with multiple reflected and diffracted propagation paths**
Jonas Stienen and Michael Vorländer
Institute of Technical Acoustics, RWTH Aachen University

14:40 **Sound insulation auralization filters design for outdoor moving sources**
Imran Muhammad, Anne Heimes and Michael Vorländer
Institute of Technical Acoustics, RWTH Aachen University

11 D - Advances in noise mapping engineering methods
Tuesday, September 10 | K7/8
Chair: G. Dutilleux

15:00 **Quality assurance methods demonstrated with the calculation of sound propagation with ISO 9613-2 and with CNOSSOS-EU**
Wolfgang Probst
DataKustik GmbH

15:20 **Meta-Modeling for urban noise mapping**
Antoine Lesieur[a], Pierre Aumond[b], Vivien Mallet[a] and Arnaud Can[b]
[a] *INRIA, Paris;* [b] *IFSTTAR, CEREMA, UMRAE*

16:20 **Global sensitivity analysis for urban noise modelling**
Pierre Aumond[a], Arnaud Can[a], Vivien Mallet[b], Benoît Gauvreau[a] and Gwenaël Guillaume[a]
[a] *IFSTTAR, CEREMA, UMRAE;* [b] *INRIA, Paris*

16:40 **Estimating of dose-responce relationship of Shinkansen railway noise using noise mapping**
Yasuhiro Hiraguri[a], Akinori Fukushima[b], Takashi Morihara[c] and Shigenori Yokoshima[d]
[a] *Kindai University;* [b] *NEWS Environmental Design Inc.;* [c] *National Institute of Technology, Ishikawa College;* [d] *Kanagawa Environmental Research Center*

17:00 **Uncertainty analysis for the in situ sound power level determination using the substitution method**
Spyros Brezas and Volker Wittstock
PTB - Physikalisch-Technische Bundesanstalt

17 C - Aeroacoustics and noise control
Tuesday, September 10 | K9
Chairs: X. Wang, W. Yang, Y.-S. Choy

8:40 **Effect of Acoustic Treatment on Fan Flutter Characteristics**
Yu Sun, Xiaoyu Wang and Xiaofeng Sun
Beihang University

9:00 **An Immersed Boundary Method for Fluid-Structure-Acoustics Interaction at Low Reynolds Numbers**
Li Wang, Fangbao Tian and Joseph C.S. Lai
University of New South Wales

9:20 **Theoretical Model for the Prediction of Sound Radiated from Unbaffled Long Enclosure with Ground Effect**
Weiping Yang and Yat-Sze Choy
The Hong Kong Polytechnic University

9:40 **Numerical and Experimental Investigation of the Generation of Wind Noise in Hearing Aids**
Jörg Riedel[a], Florian Krömer[a], Hartmut Ritter[b], Kevin Bayer[b], Jonathan Tamil[b], Dietmar Lommel[b] and Stefan Becker[a]
[a] *Institute of Process Machinery and Systems Engineering, University of Erlangen;* [b] *Sivantos GmbH*

10:00 **Experimental Investigation of the oscillating flow dynamics at the exit of regenerator meshes with different configurations**
Islam Ramadan[a], Helene Bailliet[a] and Jean-Christophe Valiere[b]
[a] *Université de Poitiers;* [b] *CNRS - UPR 3346 - Univ. Poitiers*

17 E - Acoustics of holes and dampers with mean flow
Tuesday, September 10 | K9
Chairs: A. Morgans, D. Yang

10:20 **Experimental investigation of intrinsic thermoacoustic instabilities in a combustion chamber terminated by a variable aperture**
Manmohan Vishwakarma[a], Sathesh Mariappan[a] and Maria Heckl[b]
[a] *Indian Institute of Technology Kanpur;* [b] *Keele University*

10:40 **The acoustic absorption coefficient of short circular holes sustaining a high Reynolds number bias flow**
Renaud Gaudron and Aimee Morgans
Imperial College London

11:00 **Characterization of the aeroacoustic instability in a T- junction**
Claire Bourquard, Abel Faure and Nicolas Noiray
ETH Zurich - MAVT Dpt. - CAPS Lab

11:20 **Acoustic scattering in arrays of orifices, slits and tube rows with mean flow: A comparison**
Charles Boakes, Aswathy Surendran, Dong Yang and Aimee Morgans
Imperial College London

14:00 **Prediction of Acoustic Response of Tube-rows with Bias-flow Using Linearized Navier-Stokes Equations in Frequency Domain**
Wei Na[a], Susann Boij[a], Aswathy Surendran[b], Dong Yang[b] and Aimee Morgans[b]
[a] *KTH Royal Institute of Technology;* [b] *Imperial College London*

14:20 An impedance model for thin microperforated panels
Xianhui Li, Tuo Xing, Liying Zhu, Congshuag Jiang, Wenjiang Wang and Bin Zhang
Beijing Municipal Institute of Labor Protection

14:40 Sound generation by entropy perturbations passing through short circular holes
Dong Yang, Juan Guzmán and Aimee Morgans
Imperial College London

17 D - Acoustic Metamaterials 1
Tuesday, September 10 | K9
Chair: M. Guild

15:00 An Integration Strategy for Acoustic Metamaterials to Achieve Absorption by Design
Ping Sheng
HK University of Science & Technology

15:20 Metafluid inspired by cereal straws for the perfect absorption of sound
Jean Philippe Groby[a], Weichun Huang[b], Logan Schwan[b] and Vicente Romero García[a]
[a] *Laboratoire d'Acoustique de l'Université du Mans, UMR CNRS 6613;* [b] *Laboratoire d'Acoustique de l'Université du Maine, UMR 6613*

16:20 Modeling and characterization challenges of multiple dynamics materials (also known as metamaterials)
Luc Jaouen, Fabien Chevillotte and François-Xavier Bécot
Matelys, Vaulx-en-Velin

16:40 Random Incidence Transmission Loss of Miniature Helmholtz Resonator Embedded Acoustic Meta-material
Jhalu Gorain and Chandramouli Padmanabhan
IIT Madras, INDIA

17:00 An Analytical Model for Broadband Sound Transmission Loss of a Finite Single Leaf Wall Using a Two Degree of Freedom Resonant Metamaterial
Javier Hernan Vazquez Torre[a], Jonas Brunskog[b] and Vicente Cutanda Henriquez[a]
[a] *DTU;* [b] *DTU - Technical Univ. of Denmark, Department of Electrical Engineering*

17:20 Topological bound states in mechanical graphene
Johan Christensen
UC3M Madrid

17:40 Experimental Observation of Topological Fano Resonances for Audible Sound
Farzad Zangeneh-Nejad and Romain Fleury
EPFL-STI-LWE- ELB033, Lausanne

Sessions and Posters on Wednesday, 11 September

Keynote Wednesday
Wednesday, September 11 | Europa
Abstract: see page 58
Chairs: Janina Fels

11:45 **Astroparticle Immersive Synthesizer^3 or how cosmic "ghost particles" inspire a novel concept of spatialisation of sound**
Christopher Wiebusch[a] and Tim Otto Roth[b]
[a] *III. Physikalisches Institut, RWTH Aachen;* [b] *imachination projects, Oppenau*

Topic 01 - Posters: Active acoustic systems
Wednesday, September 11 | Poster Forum: 15:20-16:00 | Foyer

- **Acoustic radiation modes and active structural acoustic control of coupled enclosure**
  Haichao Zhu, Rongfu Mao, Jinlong Liao and Changwei Su
  Naval University of Engineering, Wuhan
- **Frequency Independent Acoustic Radiation Modes of Complex Coupled Enclosure Based on Wavelet-Galerkin Method**
  Rongfu Mao, Haichao Zhu and Yinglong Zhao
  Naval University of Engineering, Wuhan
- **Assessment of vibrations and structural noise at environmental impact studies: Current practices in Portugal and aspects to be improved for railway traffic in tunnels**
  Jorge V. Patrício and Sónia Antunes
  LNEC, Lisboa, Portugal
- **Nonlinearities in Sound Field Control Systems**
  Elias D. Lumpert[a], Finn T. Agerkvist[a], Franz Maria Heuchel[b] and Jonas Brunskog[a]
  [a] *Technical University of Denmark, Department of Electrical Engineering;* [b] *Technical University of Denmark, ACT*
- **Acoustic Path Database for ANC In-Ear Headphone Development**
  Stefan Liebich, Johannes Fabry, Peter Jax and Peter Vary
  RWTH Aachen University
- **Construction of IIR Filter for Adaptive Noise Control System of Boat Noise Reduction**
  Haruki Fukatsu and Kenji Muto
  Shibaura Institute of Technology, Tokyo

- **Numerical acoustic modelling of a ventilation unit by 3D FEM and application to the design of an ANC feedforward system.**
Stéphane Lesoinne[a], Jean-Jacques Embrechts[a], Guillaume Vatin[b], Bastien Ganty[b] and Yves Detandt[b]
[a] *University of Liège, Acoustics Laboratory;* [b] *Free Field Technologies, MSC Software Belgium*

Topic 05/06 - Posters: History and Education
Wednesday, September 11 | Poster Forum: 15:20-16:00 | Foyer

- **Acoucou Platform to Acquire Proffesional Skills and Knowledge in the Field of Acoustics**
Karolina Maria Jaruszewska[a], Filip Baranski[a], Magdalena Piotrowska[b], Manuel Melon[c], Olivier Dazel[d], Michael Vorländer[e], Lukas Aspöck[f], Marko Horvat[g], Kristian Jambrošić[g], Monika Rychtarikova[h], Léopold Kritly[h] and Andreas Herweg[i]
[a] *KFB Acoustics Sp. z o.o.;* [b] *edTech & SCIENCE;* [c] *LAUM / Le Mans Université;* [d] *Laboratoire d'Acoustique de l'Université du Maine, UMR 6613;* [e] *RWTH Aachen University;* [f] *Institute of Technical Acoustics, RWTH Aachen University;* [g] *Faculty of Electrical Engineering and Computing, University of Zagreb;* [h] *KU Leuven, Faculty of Architecture;* [i] *HEAD acoustics GmbH*

Topic 08 - Posters: Noise and vibration policy and assessment
Wednesday, September 11 | Poster Forum: 15:20-16:00 | Foyer

- **Construction noise management and control policy in Hong Kong and innovative quieter methods for renovation work**
Joe Siu Cheong Mok, Cheung-Lam Wong, Chi-Wing Law and C.K. Lee
[a] *Environmental Protection Department, Hong Kong*

Topic 10 - Posters: Vehicle acoustics (air, road, rail, water, ...)
Wednesday, September 11 | Poster Forum: 15:20-16:00 | Foyer

- **Numerical simulation of in-vehicle sound field under conditions of open or closed car windows**
Liang Linda[a], Guangzheng Yu[b] and Le Yu[a]
[a] *South China University of Technology;* [b] *Acoustics Lab, School of Physics, South China University of Technology*
- **Sound field reproduction in a cabin using loudspeakers**
Dong Wang, Guosong Feng, Gongbo Ma and Xinming Li
China Academy of Space Technology

- **Artificial Neural Network predicts noise transfer as a function of excitation and geometry**
  Dimitrios Ernst Tsokaktsidis[a], Timo von Wysocki[a], Frank Gauterin[b] and Steffen Marburg[c]
  [a] *Daimler AG;* [b] *Karlsruhe Institute of Technology (KIT), Chair of Vehicle Technology;* [c] *Technical University of Munich (TUM)*
- **Effect of temperature variation on the perceived annoyance of rattle sounds in the automotive industry**
  Mohsen Bayani[a], Casper Wickman[a] and Rikard Söderberg[b]
  [a] *Volvo Car Corporation, Chalmers UT;* [b] *Chalmers University of Technology*

Topic 11 - Posters: Environmental sound (sources, propagation)
Wednesday, September 11 | Poster Forum: 15:20-16:00 | Foyer

- **Noise Distribution Change of the Backside Urban Blocks depending on the Plans of the Roadside Buildings**
  Chan Hoon Haan and Yong Seong Kim
  Chungbuk National University
- **Estimation of Infrasound Source Positions using Multipoint Observation**
  Zhenglie Cui, Ryosuke Sasahara, Ryouichi Nishimura and Yôiti Suzuki
  Research Institute of Electrical Communication, Tohoku University
- **Urban canyon noise assessment: sound incidence on façade and mitigating actions**
  Jessica de Almeida Xavier, Aline Lisot and Paulo Fernando Soares
  State University of Maringa
- **Immission measurements of wind turbine noise with a microphone array to set up a sound database**
  Sebastian Mellert, Dagmar Rokita and Friedrich Ueberle
  HAW - Hamburg University of Applied Sciences
- **Analysis of Low-Frequency Noise from Wind Turbines using a Temporal Noise Code**
  Franck Bertagnolio, Helge Madsen and Andreas Fischer
  DTU Wind Energy
- **Environmental noise event classification based on self-organizing map using psychoacoustic features and spatial filtering**
  Jure Murovec[a], Luka Čurović[a], Tadej Novaković[b] and Jurij Prezelj[a]
  [a] *University of Ljubljana;* [b] *University of Ljubljana, Faculty of Mechanical Engineering*
- **Prediction of quiet side levels in noise map calculations - an initial suggestion of methodology**
  Jens Forssén[a], Andreas Gustafson[a], Laura Esteévez-Mauriz[a], Marie Haeger-Eugensson[b] and Meta Berghauser Pont[a]
  [a] *Chalmers University of Technology, Architecture and Civil Engineering;* [b] *Gothenburg University, Department of Earth Sciences / COWI AB*

- **Effect of handy microphone movement in Mixed Reality visualization system of sound intensity**
  Yuta Kataoka[a], Wataru Teraoka[a], Yasuhiro Oikawa[a] and Yusuke Ikeda[b]
  [a] *Waseda University, Tokyo;* [b] *Tokyo Denki University*

Topic 14 - Posters: Underwater acoustics
Wednesday, September 11 | Poster Forum: 15:20-16:00 | Foyer

- **An effective method for measuring the thickness of Cobalt-rich Manganese Crust based on the neighborhood information and dual-channel information**
  Feng Hong, Haihong Feng, Minyan Huang and Binxian Wang
  Shanghai Acoustic Lab, CAS
- **A Study of Acoustic Characteristics at Sea Bottom Sediment Including Organic Matter**
  Hanako Ogasawara, Kazuyoshi Mori and Hiroshi Yagi
  National Defense Academy of Japan
- **Snapping shrimps sound in Black sea**
  Nikolay Grigorievich Bibikov, Andrey Ninelovich Serebryany, Michail Pavlovich Ivanov and Oleg Borisovich Ovchinnikov
  N.N. Andreyev Acoustical Institute, Moscow
- **Time Arrival Structures of the Empirical Green's Function Extracted from Ambient Noise in Shallow Water**
  Xishan Yang and Fenghua Li
  State Key Laboratory of Acoustics, Institute of Acoustics, CAS, Beijing

Topic 17 - Posters: Physical acoustics
Wednesday, September 11 | Poster Forum: 15:20-16:00 | Foyer

- **The use of Nested Helmholtz Resonators for Broadband Low Frequency Sound Absorption**
  Alexander James Dell
  University of Sheffield
- **Investigation of Elastic Surface and Edge Modes in Finite-Size Three-Dimensional Phononic Crystals**
  Tian-Xue Ma[a], Quan-Shui Fan[b], Chuanzeng Zhang[a] and Yue-Sheng Wang[c]
  [a] *University of Siegen;* [b] *Beijing Jiaotong University;* [c] *Tianjin University*
- **Chessboard Design of Pyramid-Core Sandwich Structures**
  Zhengyang Li[a], Tian-Xue Ma[a], Fengming Li[b] and Chuanzeng Zhang[a]
  [a] *University of Siegen;* [b] *Harbin Engineering University*

- **A monostable acoustic metamaterial for broadband low frequency sound absorption**
  Xianhui Li, Tuo Xing, Junjuan Zhao and Xiaoling Gai
  Beijing Municipal Institute of Labor Protection

Topic 20 - Posters: Room acoustics
Wednesday, September 11 | Poster Forum: 15:20-16:00 | Foyer

- **Fourier Spectral Method for Acoustic Simulation with Domain Enclosed by Curved Boundary**
  Yu Kohase, Tsubasa Kusano, Kohei Yatabe and Yasuhiro Oikawa
  Waseda University
- **Differences in Sound Absorption of Samples with Periodic Porosity Produced using Various Additive Manufacturing Technologies**
  Tomasz G. Zielinski[a], Kamil C. Opiela[a], Piotr Pawlowski[a], Nicolas Dauchez[b], Thomas Boutin[b], John Kennedy[c], Daniel Trimble[c] and Henry Rice[c]
  [a] *Institute of Fundamental Technological Research of the Polish Academy of Science;* [b] *Alliance Sorbonne Université, Université de Technologie de Compiegne;* [c] *Trinity College Dublin*
- **Drinking Straws as a Broadband Sound Absorber**
  Ioanna Christia[a], Martin Tenpierik[b], Foteini Setaki[b] and Marcel Bilow[b]
  [a] *Level Acoustics & Vibration;* [b] *TU Delft University of Technology*
- **Study on the Acoustic Environment of Tibetan Buddhist Temples in Han Region**
  Ziqing Tang[a], Hui Xie[b] and Fenghua Lu[a]
  [a] *Faculty of Architecture and Civil Engineering,TYUT;* [b] *Chongqing University*
- **Crossover Frequency Estimation From Statistical Features of a Room Transfer Function**
  Marcio Henrique de Avelar Gomes[a], Paulo Bonifacio[b], Eric Brandão[c], Luis Henrique Santana[a], Elvis Bertoti[a], Rodrigo Catai[a] and Hilbeth Azikri de Deus[a]
  [a] *Federal University of Technology, Curitiba;* [b] *Federal Institute of Technology, Itajai;* [c] *Universidade Federal de Santa Maria*
- **The effect of reverberated speech on working memory: Toward an optimal balance of calmness and liveliness in libraries**
  Kazuma Shamoto[a], Hiroko Terasawa[b] and Hiroshi Itsumura[b]
  [a] *Graduate School of Library, Information and Media Studies, University of Tsukuba;* [b] *Faculty of Library, Information and Media Science, University of Tsukuba*
- **Acoustic simulation of the sound quality of standardized classrooms in higher education institutions in Natal / RN**
  Luciana da Rocha Alves and Bianca Carla Dantas de Araújo
  Federal University of Rio G do Norte

- **Audible room acoustic differences of public preschools in the Gothenburg area**
  Julia Winroth[a], Denice Perkhed[b], Erling Nilsson[c], Kerstin Persson Waye[d] and Ann-Charlotte Thysell[b]
  [a] *The Sahlgrenska Academy at the University of Gothenburg;* [b] *ÅF Infrastruktur AB - Ljud och vibrationer;* [c] *Saint-Gobain Ecophon;* [d] *University of Gothenburg, Dep. of Occupational & Environmental Medicine*

- **A New Paradigm of Effective Communication based on Voice Shapes**
  Alessio Carullo[a], Adriano Anibaldi[b], Arianna Astolfi[c], Alessio Atzori[a], Viviana Cennamo[a] and Giovanni Zito[b]
  [a] *Politecnico di Torino - Electronics and Telecommunications Dep.;* [b] *Interago Academy;* [c] *Politecnico di Torino - Department of Energy*

- **Relationship among brain activity, emotions and singing voice**
  Lady Catherine Cantor-Cutiva, María del Pilar Rodríguez, Ferney Beltrán, Andrés Ojeda-Sánchez and Miguel Suárez-Russi
  Universidad Nacional de Colombia

- **Relationship between brain activity and voice acoustic parameters during singing**
  Lady Catherine Cantor-Cutiva, María del Pilar Rodríguez and Miguel Suárez-Russi
  Universidad Nacional de Colombia

- **On the production mechanisms of the singer's formant**
  Bernd Kröger
  RWTH Aachen University

- **Objective Assessment of the Effects of Semi-Occluded Vocal-Tract Techniques on Vocal Performance**
  Alessio Carullo[a], Arianna Astolfi[b], Alessio Atzori[a], Vittoria Carlino[c], Antonella Castellana[a], Claudio Fabro[c] and Marco Fantini[d]
  [a] *Politecnico di Torino - Electronics and Telecommunications Dep.;* [b] *Politecnico di Torino - Department of Energy;* [c] *Freelance;* [d] *FPO-IRCCS Candiolo Cancer Institute*

- **Effect of a training program of voice use on voice functioning of college professors**
  Ángela Patricia Atará Piraquive[a], Pasquale Bottalico[b] and Lady Catherine Cantor-Cutiva[c]
  [a] *Department of Collective Health, Universidad Nacional de Colombia;* [b] *University of Illinois;* [c] *Universidad Nacional de Colombia*

- **Audio-visual Mutual Effect of Spatial Impression in Architectural Space**
  Chiharu Hiraoka[a], Takane Terashima[a], Ayumi Ishikawa[b], Yasunobu Tokunaga[c] and Xue Gong[a]
  [a] *Mie University, Tsu;* [b] *National Institute of Technology, Gifu College;* [c] *National Institute of Technology, Maizuru College*

- **Experiment on Audio-visual Mutual Effect on Subjective Impression in Architectural Space by HMD VR Display**
  Takane Terashima[a], Chiharu Hiraoka[a], Xue Gong[a], Yasunobu Tokunaga[b] and Ayumi Ishikawa[c]
  [a] *Mie University, Tsu;* [b] *National Institute of Technology, Maizuru College;* [c] *National Institute of Technology, Gifu College*

- **Sound Field Evaluation by using Closely Located Four-point Microphone Method and Mixed Reality Technology**
  Wataru Teraoka[a], Yuta Kataoka[a], Yasuhiro Oikawa[a] and Yusuke Ikeda[b]
  [a] *Waseda University, Tokyo;* [b] *Tokyo Denki University*

- **A Study on Discrimination of Acoustic Conditions in an Audience Area of an Auditorium**
  Yasunobu Tokunaga[a], Ryo Inoue[b] and Takane Terashima[c]
  [a] *National Institute of Technology, Maizuru College;* [b] *Natl. Inst. of Tech., Maizuru Coll.;* [c] *Mie University*

- **Comparison between sound absorption coefficients of resonant membrane panels laminated bamboo tested in reverberant chamber and virtual simulation**
  Brunno Guilherme Barbosa de Sa[a], Jaime Gonçalves de Almeida[b], Maria Luiza de Ulhôa Carvalho[c] and Rafael Caetano Cardoso Boaventura[d]
  [a] *Achitecture and Urbanism - Paulista University - Campi Brasilia;* [b] *Architecture and Urbanism - University of Brasília;* [c] *School of Computing, Science & Engineering - University of Salford;* [d] *Clave de Sá - Acoustical Solutions*

- **Acoustic adjustment of large sports halls - case study: correction of the acoustic response of an Ice Arena for uses other than skating**
  Alberto Piffer and Elena Resenterra
  Studio di Acustica - Trento - Italy

- **The acoustical assessment of the commercial buildings - design assumptions**
  Elżbieta Nowicka
  ITB Building Research Institute, Warszawa

- **Visualization of Distribution of Room Acoustic Parameters by Using Mobile Robot**
  Masashi Uehara, Naoki Ishikawa and Shigeki Okawa
  Chiba Institute of Technology, Narashino

- **Reverberation Time Estimation through Neural Networks**
  Antonio Petraglia[a], Rodrigo Prates[a], Mariane Rembold Petraglia[b] and Julio Cesar Boscher Torres[b]
  [a] *Federal University of Rio de Janeiro;* [b] *Electrical Eng. Program - Federal University of Rio de Janeiro*

- **Fluttering Reverberance: Real Life Examples of Chaotic Billiards with Convex Sections**
  Trevor Cox, Richard Hughes and Dominic Parry-Merrell
  University of Salford

- **In-situ Sound Absorption Measurement Method of Materials Using Ensemble Averaging - Comparison of Proposed Method with Tube Method or Reverberation Room Method -**
  Noriko Okamoto[a], Otsuru Toru[b], Reiji Tomiku[b] and Kaho Ito[a]
  [a] *The University of Kitakyushu;* [b] *Oita University, Japan*

- **A Ray tracing algorithm developed at the Acoustical engineering course of UFSM in Brazil**
  Eric Brandão[a], Rodrigo Dal Fiume[b], Gonçalo Morgado[b], William D'Andrea Fonseca[c] and Paulo Mareze[b]
  [a] *Universidade Federal de Santa Maria;* [b] *UFSM;* [c] *Acoustical Engineering (UFSM)*

- **The Importance of Several Room Acoustic Descriptors in Operation Rooms**
  Mai-Britt Beldam
  Saint-Gobain Ecophon

- **Acoustic conditions of clinic rooms for sound field audiometry**
  Valentina Zapata-Rodriguez[a], Cheol-Ho Jeong[b], Ida Hoffmann[b], Wan-Ho Cho[c], Mai-Britt Beldam[d] and James Michael Harte[a]
  [a] *Interacoustics, Lyngby;* [b] *Technical University of Denmark (DTU);* [c] *KRISS;* [d] *Saint-Gobain Ecophon*

Topic 24 - Posters: Structure-borne sound and vibration engineering
Wednesday, September 11 | Poster Forum: 15:20-16:00 | Foyer

- **Piecewise Bilinear Characteristics of Acoustic Mode In Dual Pulse Solid Rocket Motor Combustion Chamber**
  Hao Le[a], Yingchen Wang[b], Jun Chen[a] and Xiaoming Shi[c]
  [a] *Shanghai Space Propulsion Technology Research Institute;* [b] *Beijing Deep Blue Aerospace Technology Co.Ltd.;* [c] *Shanghai Electro-Mechanical Engineering Inst.*

- **Verification of Accuracy Using Measured Values of Low Frequency Noise Numerical Analysis Generated from Expressway Bridge**
  Hiroshi Iwabuki[a], Osamu Funahashi[a], Masayuki Shimura[b] and Noboru Kamiakito[b]
  [a] *Nippon Expressway Research Institute;* [b] *Civil Engineering and Eco-Technology Consultants*

- **Resonance modes for exterior vibro-acoustic problems, application to a dielectric elastomer loudspeaker**
  Emil Garnell, Olivier Doaré and Corinne Rouby
  IMSIA, ENSTA ParisTech

- **Study on the influence of thrust bearing isolation on the acoustic and vibration characteristics of submarine**
  Yangyang Zhang and Jun Suo
  Naval Research Academy, Beijing
- **Study on the sound transmission loss of a truncated conical shell excited by an incident plane acoustic wave**
  Masoud Golzari and Ali Ashgar Jafari
  K.N. Toosi University of Technology
- **Study on the influence of kinetic parameters of propeller on acoustic and vibration characteristics of propulsion shafting**
  Yangyang Zhang and Jun Suo
  Naval Research Academy, Beijing
- **Investigation of the applicability of acoustic emission and vibration analysis to describe the thermo-mechanical mechanism during ultrasonic metal welding**
  Elie Abi Raad[a], Isabel Balz[b], Uwe Reisgen[b] and Michael Vorländer[a]
  [a] *Institute of Technical Acoustics, RWTH Aachen University;* [b] *Lehrstuhl und Institut für Schweißtechnik und Fügetechnik, RWTH Aachen University*
- **Influences on structural intensity for injection-moulded thermoplastic parts**
  Dennis Netzband[a], Andreas Ujma[a] and Elmar Moritzer[b]
  [a] *Fachhochschule Südwestfalen;* [b] *Paderborn University*
- **Field test of resonant frequency monitoring utilizing background vibration in various buildings**
  Yoshinori Takahashi[a], Naru Sato[b] and Yasutaka Nakajima[b]
  [a] *TMCIT, Tokyo;* [b] *RION, Tokyo*
- **Identification of dominant noise sources in a diesel power group**
  Hasan Hassoun[a], Jaafar Hallal[b], Mohammad Hammoud[b] and Denis Duhamel[a]
  [a] *École des Ponts Paris Tech;* [b] *International University of Beirut*
- **An adaptive structural excitation system as a tool for structure-borne noise research**
  Marco Norambuena and René Winter
  DLR - German Aerospace Center
- **Research on Structural Vibration Control Based on Local Stiffness Reinforcement and Local Constrained Damping**
  Simi Tang
  Naval Research Academy, Beijing
- **Classification of operating conditions of machinery combined with transmissibility function method**
  Peidong Jia[a], Jing Wang[a], Mingmei Han[a], Xun Wang[b], Xiaobin Cheng[a] and Jun Yang[c]
  [a] *Chinese Academy of Sciences;* [b] *IOA, Chinese Academy of Sciences;* [c] *Institute of Acoustics, CAS*

Topic 25 - Posters: Ultrasound
Wednesday, September 11 | Poster Forum: 15:20-16:00 | Foyer

- **Non-contact Thickness Gauging Method based on Frequency Analysis using Underwater Ultrasonic for Steel Structures**
  Hiroyoshi Yamashita[a], Takumi Hakamata[a], Kazuki Abukawa[b], Tomoo Sato[c], Sayuri Matsumoto[c], Kotaro Hoshiba[a], Takenobu Tsuchiya[a] and Nobuyuki Endoh[a]
  [a] *Kanagawa University;* [b] *National Institute of Technology, Kisarazu College;* [c] *Port and Airport Research Institute, Yokosuka*

- **3-D numerical simulation of nonlinear elastic wave propagation in locally damaged materials**
  Benjamin Ankay and Chuanzeng Zhang
  Universität Siegen

- **Temperature dependence of a propagation speed of longitudinal waves in different solids for use as a wedge material in an extreme-temperature-resistant ultrasonic transducer**
  Oleg Shapovalov[a], Mate Gaal[a], Gerald Hönig[a], Thomas Gradt[a] and Sabine Weiß[b]
  [a] *Bundesanstalt für Materialforschung und -prüfung (BAM);* [b] *Brandenburg University of Technology Cottbus-Senftenberg*

- **Use of Higuer-Harmonic Generation To Detecting Cracks due To Steel Corrosion In Reinforced Concrete**
  Jaime Ramis, Marina Miró, Jesus Carbajo, Pedro Poveda, Guillem de Vera and Miguel A. Climent
  University of Alicante

- **Numerical Analysis of the Nonlinear Restoring Force Based on Near- field Acoustic Levitation**
  Yuanyuan Liu[a], Minghui Shi[b], Kheirollah Sepahvand[a] and Steffen Marburg[a]
  [a] *Technical University of Munich (TUM);* [b] *Hunan University*

- **3D Imaging Method for an Air-Coupled 40 kHz Ultrasound Phased-Array**
  Gianni Allevato, Jan Hinrichs, Dominik Großkurth, Matthias Rutsch, Jan Adler, Axel Jäger, Marius Pesavento and Mario Kupnik
  TU Darmstadt

- **The Effect of 40 kHz Ultrasonic Noise Exposure on Human Hearing**
  Andrew Di Battista
  Ultrahaptics Ltd

- **Agglomeration of aerosol using intense standing wave field of cylindrical shape**
  Rintaro Motoi, Takuya Asami and Hikaru Miura
  Nihon University, Tokyo

- **Development of aerial ultrasonic source with cylindrical radiation surface for ultrasonic agglutination**
  Takuya Asami and Hikaru Miura
  Nihon University, Tokyo
- **Removal of extraneous matter by ultrasonic washing in running water**
  Hosaka Hidenobu, Takuya Asami and Hikaru Miura
  Nihon University, Tokyo
- **DNA amplification by sound and ultrasound frequency vibration**
  Ryu Kobayashi, Seiji Yoneda and Shigeo Yamaguchi
  Kanagawa University, Yokohama
- **Light scattering observation of oscillation of a bubble in acoustic cavitation cloud**
  Takanobu Kuroyama
  NIT, GIfu College, Motosu
- **Development of longitudinal-torsional vibration source with a helical slits transmission rod**
  Shinya Oishi, Takuya Asami and Hikaru Miura
  Nihon University, Tokyo
- **Intracranial Nonthermal Ablation Mediated by Transcranial Focused Ultrasound and Phase-Shift Nanoemulsions**
  Tyrone Porter[a], Chenguang Peng[a], Tao Sun[b], Natalia Vykhodtseva[b], Chanikarn Power[b], Yongzhi Zhang[b] and Nathan McDannold[b]
  [a] *Boston University;* [b] *Brigham & Women's Hospital, Boston*
- **The use of magnetic nanoparticles to increase the efficiency of magneto-ultrasonic heating.**
  Katarzyna Kaczmarek[a], Milan Timko[b], Tomasz Hornowski[a] and Arkadiusz Józefczak[a]
  [a] *Institute of Acoustics, Faculty of Physics, Adam Mickiewicz University in Poznan;* [b] *Institute of Experimental Physics, Slovak Academy of Sciences in Košice*

Topic 27 - Posters: Virtual Acoustics
Wednesday, September 11 | Poster Forum: 15:20-16:00 | Foyer

- **A study on the relationship between speed of sound image and evaluation value of moving sound image**
  Mika Kurabayashi and Kenji Muto
  Shibaura Institute of Technology
- **A Physically Motivated Approach for Binaural Simulation of Moving Sound Sources and Receivers**
  Christoph Urbanietz and Gerald Enzner
  Ruhr-Universität Bochum, IKA

- **The open-source Virtual Acoustics (VA) real-time auralization framework**
  Jonas Stienen[a], Frank Wefers[b] and Michael Vorländer[a]
  [a] *Institute of Technical Acoustics, RWTH Aachen University;* [b] *International Audio Laboratories Erlangen, University of Erlangen-Nuremberg*

- **Tournament Formats as Method for Determining Best-fitting HRTF Profiles for Individuals wearing Bone Conduction Headphones**
  Tray Minh Voong and Michael Oehler
  Universität Osnabrück

- **Spatial Upsampling of Individual Sparse Head-Related Transfer Function Sets by Directional Equalization**
  Christoph Pörschmann[a], Johannes M. Arend[a] and Fabian Brinkmann[b]
  [a] *Technische Hochschule Köln;* [b] *Technical University of Berlin*

20 M - Effects of noise and room acoustics on communication among occupational voice users
Wednesday, September 11 | Europa
Chairs: V. Lyberg Åhlander, P. Bottalico, L.C. Cantor-Cutiva

8:40 **Voice and Noise Dosimetry in College Voice Teachers**
Pasquale Bottalico[a], Yvonne Redman[b], Lady Catherine Cantor-Cutiva[c] and Chiara Vercelli[a]
[a] *University of Illinois;* [b] *University of Illinois Urbana-Champaign;* [c] *Univ. Nacional de Colombia*

9:00 **A pilot study in primary school on the effect of a noise monitoring system with lighting feedback on teachers' voice parameters, noise levels and subjective assessments**
Sonja Di Blasio[a], Giuseppina Emma Puglisi[a], Chiara Gervasi[b], Antonella Castellana[b], Silvia Murgia[a], Greta Minelli[a], Giuseppe Vannelli[a], Simone Corbellini[b], Alessio Carullo[b] and Arianna Astolfi[a]
[a] *Politecnico di Torino - Department of Energy;* [b] *Politecnico di Torino - Electronics and Telecommunications Department*

9:20 **Effects of Background Noise on Acoustic-Perceptual Correlates of Voice**
Supraja Anand
University of South Florida

9:40 **Better Communication and Learning in the Classroom. Training Teachers Awareness of Voice use and Room Acoustics.**
Suvi Karjalainen[a] and Viveka Lyberg Åhlander[b]
[a] *Lund University/Logopedics, Phoniatrics and Audioloy;* [b] *Lund Univ./Logopedics*

10:20 **Semantic Coherence and Speech Production in Adverse Listening Conditions**
Carine Signoret, Emil Holmer and Mary Rudner
Linköping University

10:40 **The potential of restorative spaces on noise-related wellbeing in schools**
Ingrid Verduyckt[a], Rachel Bouserhal[b], Adriana Lacerda[a], Cécilia Borges[a] and Annelies Bockstael[c]
[a] *Université de Montréal;* [b] *École de technologie supérieure de Montréal;* [c] *Ghent University, Department INTEC-WAVES*

11:00 **Improvement of the sound environment for supporting communication at nursery facilities: Approaches for changing room acoustics and users' minds**
Saki Noguchi and Kanako Ueno
Meiji University, Kawasaki

11:20 **Acoustic Quality of University Classrooms: a Subjective Evaluation of the Acoustic Comfort and Conditions at the University of Sharjah Classrooms**
Hussein Elmehdi
Sharjah, United Arab Emirates

14:00 **Performance Evaluation of Autocorrelation Technique for Automatic Speaker Identification in Various Environments**
Noha Korany
Alexandria University, Egypt

14:20 **Accounting for Variability over the Voice Range**
Sten Ternström[a] and Peter Pabon[b]
[a] *KTH Royal Institute of Technology, Stockholm;* [b] *Royal Conservatoire, Institute of Sonology, The Hague*

05 W - Education in Acoustics
Wednesday, September 11 | Europa
Chairs: A. Kohlrausch, K. Bijsterveld

14:40 **MATLAB-based simulation software as teaching aid for physical acoustics**
Jorge Petrosino, Lucas Fernando Landini, Georgina Alejandra Lizaso, Antonio Ian Kuri and Ianina Canalis
Universidad Nacional de Lanus

15:00 **Information Retrieval and Topic Modeling based on the ICA Proceedings**
Thore Oltersdorf
Fraunhofer-Institut für Solare Energie, Freiburg

04 H - Insulating and absorbing materials made from renewables 2
Wednesday, September 11 | Brüssel
Chairs: F. Martellotta, V. Wittstock

8:40 **Preliminary investigation on the acoustic properties of absorbers made of recycled textile fibers**
Chiara Rubino[a], María Angeles Bonet-Aracil[b], Stefania Liuzzi[a] and Francesco Martellotta[a]
[a] *DICAR-Politecnico di Bari;* [b] *Universitat Politècnica de València*

9:00 **Characterization of woven fabrics for development of micro perforated panel absorbers**
Gunawan[a], Iwan Prasetiyo[b], B. Yuliarto[a], K. Anwar[a] and D. R. Andhika[a]
[a] *Engineering Physics, Institut Teknologi Bandung;* [b] *Institut Teknologi Bandung*

9:20 **Sound Absorption Characteristics of a Back-Perforated Honeycomb Panel with an Air-Layer**
Kyungsoo Kong, Tetsuya Sakuma and Naohisa Inoue
The University of Tokyo

9:40 **Architectural Acoustic Design using absorption materials: the case study 'Snooze Panel'**
Livio Mazzarella and Maria Cairoli
Politecnico of Milan

10:00 **Analysis of environmental and seasonal effects on sound absorption by green wall systems**
Emmanuel Attal[a], Nicolas Côté[b], Takafumi Shimizu[c] and Bertrand Dubus[a]
[a] *IEMN-ISEN, Lille;* [b] *Wavely SAS;* [c] *Institute of Environmental Systems Science, Shimane University*

04 G - Low frequency sound and vibration in buildings
Wednesday, September 11 | Brüssel
Chairs: D. Bard-Hagberg, A. Homb

10:40 **Reducing ground-borne noise due to railways. Part I: assessing the problem**
Catherine Guigou-Carter[a], Guillaume Coquel[b], Philippe Jean[c] and Alexandre Jolibois[c]
[a] *Centre Scientifique et Technique du Bâtiment;* [b] *RATP;* [c] *Building Science and Technology Center (CSTB)*

11:00 **Reducing ground borne noise due to railways. Part II : mitigation measures**
Philippe Jean[a], Catherine Guigou-Carter[b] and Alexandre Jolibois[b]
[a] *Building Science and Technology Center (CSTB);* [b] *Centre Scientifique et Technique du Bâtiment*

11:20 **Correction of Sound Pressure Levels Calculated for Small Rooms Using Diffuse-Field Theory**
Kiyoshi Masuda and Hikari Tanaka
Taisei Corporation

14:00 **Using realistic test signals to evaluate existing structures for low frequency sound transmission from clubs, live music venues, discos, and exercise facilities**
David Sage Woolworth
Roland, Woolworth & Associates

14:20 Experimental Study on Low-Frequency Averaging of Indoor Sound Pressure Level in Façade Sound Insulation Measurement
Jinyu Liu, Naohisa Inoue and Tetsuya Sakuma
The University of Tokyo

14:40 Additional sound insulation panels ZIPS-experience of 20 years of application
Alexander Boganik and Anatoly Livshits
Acoustic Group, Moscow

15:00 Noise from plants systems and Building Information Modeling: The Code Checking.
Costantino Carlo Mastino[a], Roberto Baccoli[a], Andrea Frattolillo[b] and Martino Marini[c]
[a] *University of Cagliari - Department of civil engineering, environmental and arch.;* [b] *University of Cagliari;* [c] *University of Sassari*

04 K - Facade Sound Insulation
Wednesday, September 11 | Berlin 1
Chairs: K. Larsson, L. Barbaresi

8:40 Facade Sound Insulation as Protection to Outdoor Noise
Chiara Scrosati, Fabio Scamoni, Michele Depalma and Matteo Ghellere
Construction Technologies Institute of the National Research Council of Italy

9:00 Measurements and prediction of sound insulation of innovative ventilated façade solutions
Francesca Di Nocco, Luca Barbaresi, Federica Morandi and Massimo Garai
University of Bologna

9:20 Auralization of the Coincidence Effect on Façade Sound Insulation
Dag Glebe and Krister Larsson
RISE Research Institutes of Sweden

9:40 Designing a Better Plenum Window or Balcony for Higher Noise Reduction Against Outdoor Noise
Liu Yee Louisa Cheung, David Bk Yeung, Ching Chan and Calvin Chiu
Ramboll Hong Kong Limited

10:00 Sound Insulation of Fenestration Systems: A Comprehensive Web-Based Simulation Program and Validation
Tejav Deganyar, Fangliang Chen and Yihe Huang
Schuco-USA/Virtual Construction Lab.

10:20 Adaptive acoustic comfort: Assessing noise with provisions for ventilation and overheating in dwellings
Jack Harvie-Clark[a], Anthony Chilton[b], Nick Conlan[a] and David Trew[c]
[a] *Apex Acoustics Ltd;* [b] *Max Fordham LLP;* [c] *Bickerdike Allen Partners*

10:40 Requirements for the façade sound insulation for different types of outdoor noise
Steffen Körper
German Environment Agency

11:00 Ventilative cooling in noisy environments: practical options for the UK
Nick Conlan and Jack Harvie-Clark
Apex Acoustics Ltd

11:20 Innovative Noise Mitigation Measure- Baffle Type Acoustic Window
Ching Chan, Liu Yee Louisa Cheung, David Bk Yeung, Calvin Chiu and Billy Fan
Ramboll Hong Kong Limited

18 C - Rehabilitative audiology
Wednesday, September 11 | Berlin 1
Chairs: T. Neher, G. Singh

14:00 A Clinical Test Battery for Better hEAring Rehabilitation (BEAR). Towards the prediction of individual auditory deficits and hearing-aid benefit
Raul Sanchez-Lopez[a], Silje Nielsen[a], Oscar Cañete[a], Michal Fereczkowski[a], Mengfan Wu[b], Tobias Neher[b], Torsten Dau[a] and Sébastien Santurette[c]
[a] *Technical University of Denmark (DTU);* [b] *Univ. of Southern Denmark;* [c] *Oticon A/S*

14:20 Assessing the interaction between different auditory profiles and benefit from six hearing aid processing strategies: Insights from the Better hEAring Rehabilitation (BEAR) project
Mengfan Wu[a], Raul Sanchez-Lopez[b], Mouhamad El-Haj-Ali[a], Silje Nielsen[b], Michal Fereczkowski[b], Torsten Dau[c], Sébastien Santurette[d] and Tobias Neher[a]
[a] *Univ. of Southern Denmark;* [b] *Technical University of Denmark (DTU);* [c] *Oticon A/S*

14:40 Evaluation of Objective Prediction Approaches for Aided Listening in Complex Acoustic Scenes
Florian Kramer, Marc René Schädler and Anna Warzybok
University of Oldenburg

15:00 Effects of Personalising Hearing-Aid Parameter Settings Using a Real-Time Machine-Learning Approach
Niels Søgaard Jensen, Laura Winther Balling and Jens Brehm Bagger Nielsen
Widex A/S

15:20 User behavior with EVOTION hearing aids
Niels H. Pontoppidan
Eriksholm Reserach Centre, Oticon

15:40 Hearing aid benefit in everyday life
Inga Holube[a], Petra Von Gablenz[a], Ulrik Kowalk[a], Markus Meis[b] and Jörg Bitzer[a]
[a] *Jade University of Applied Sciences;* [b] *Hörzentrum Oldenburg*

20 F - Sound absorption including the reverberation room issues, new trends revision ISO 354
Wednesday, September 11 | Berlin 2
Chairs: M. Garai, C. Scrosati, M. Nolan

9:00 **On the Revision of ISO 354, Measurement of the Sound Absorption in the Reverberation Room**
Martijn Vercammen
Peutz, Mook (NL)

9:20 **Design Principles of the Italian Round Robin Test on Reverberation Rooms**
Chiara Scrosati[a], Diego Annesi[b], Luca Barbaresi[c], Roberto Baruffa[d], Filippo D'Angelo[e], Giuseppe De Napoli[e], Michele Depalma[a], Antonino Di Bella[f], Sabato Di Filippo[g], Dario D'Orazio[c], Massimo Garai[c], Nicola Granzotto[f], Valter Lori[h], Francesco Martellotta[i], Antonio Moschetto[b], Francesco Pompoli[j], Andrea Prato[k], Pietro Nataletti[b], Fabio Scamoni[a], Alessandro Schiavi[k] and Fabio Serpilli[h]
[a] *Construction Technologies Institute of the National Research Council of Italy;* [b] *INAIL;* [c] *University of Bologna;* [d] *Istituto Giordano;* [e] *CSI;* [f] *University of Padova - Department of Industrial Engineering;* [g] *ZetaLab;* [h] *UNIVPM;* [i] *DICAR-Politecnico di Bari;* [j] *Univ. degli studi di Ferrara;* [k] *INRiM - National Institute of Metrological Research*

9:40 **Some comments on using a reference absorber for absorption measurements in reverberation rooms**
Volker Wittstock, Heinrich Bietz and Sylvia Stange-Kölling
Physikalisch-Technische Bundesanstalt

10:00 **The effect of absorber placement on absorption coefficients obtained from reverberation chamber measurements**
Jamilla Balint[a] and Florian Muralter[b]
[a] *Graz University of Technology;* [b] *Faculty of Engineering, University of Deusto*

10:20 **Measurement of Diffuse-Field Sound Absorption Coefficient of Materials Using the Two Microphones Method**
Paulo Medeiros Massarani, Ricardo Villela and Daniel Pazos
Inmetro, Brazil

10:40 **Design of a New Testing Chamber to Measure the Absorption Coefficient Down to 25 Hz**
Peter D'Antonio[a], Mélanie Nolan[b], Efren Fernandez-Grande[c] and Cheol-Ho Jeong[c]
[a] *RPG Acoustical Systems, LLC;* [b] *DTU Electrical Engineering, Acoustic Technology;* [c] *Technical University of Denmark (DTU)*

11:00 **Experimental characterization of the decaying sound field in a reverberation room**
Mélanie Nolan[a], Marco Berzborn[b] and Efren Fernandez-Grande[c]
[a] *DTU Electrical Engineering, Acoustic Technology;* [b] *Institute of Technical Acoustics, RWTH Aachen University;* [c] *Technical University of Denmark*

11:20 On the Directional Properties of Energy Decay Curves
Marco Berzborn[a], Mélanie Nolan[b], Efren Fernandez-Grande[c] and Michael Vorländer[a]
[a] *Institute of Technical Acoustics, RWTH Aachen University;* [b] *DTU Electrical Engineering, Acoustic Technology;* [c] *Technical University of Denmark*

14:00 A case study on the new reverberation room built in University of Technology Sydney
Xiaojun Qiu, Qiaoxi Zhu, Shuping Wang and Jiaxin Zhong
University of Technology Sydney

14:20 Practical aspects related to the measurement of the diffuse field absorption coefficient in scaled reverberation rooms
Louena Shtrepi[a], Francesca Latorella[b], Andrea Prato[c], Alessandro Schiavi[c], Marco Masoero[b] and Arianna Astolfi[d]
[a] *Politecnico di Torino - DENERG;* [b] *Politecnico di Torino;* [c] *INRiM - National Institute of Metrological Research;* [d] *Politecnico di Torino - Department of Energy*

14:40 Prediction of the Sound Absorption of Micro-Perforated Panels whose Holes are Extended in Length by Tubes
John Laurence Davy[a], Mohammad Fard[b], Qian Zhang[c], Yadong Lyu[c] and Jun Yang[d]
[a] *CSIRO and RMIT University, Carnegie, Australia;* [b] *School of Engineering, RMIT University;* [c] *Chinese Academy of Sciences;* [d] *Institute of Acoustics, CAS*

15:00 Some notes about low frequency measurements in a reverberation room
Dario D'Orazio, Luca Barbaresi and Massimo Garai
University of Bologna

15:20 Building FEM Low Frequency Room Models through Modal Decay Time Measurements
Roberto Magalotti and Valentina Cardinali
B&C Speakers, Bagno a Ripoli

15:40 On the Use of Geometrical Acoustic Models of a Reverberant Chamber to Improve the Reliability of Sound Absorption Measurements
Francesco Martellotta, Ubaldo Ayr and Chiara Rubino
DICAR-Politecnico di Bari

18 H - Audio-visual (speech) perception
Wednesday, September 11 | Berlin 3
Chairs: V. Hohmann, P. Zahorik

8:40 Audiovisual Speech Perception: Time for a paradigm shift
Nancy Tye-Murray
Washington University School of Medicine (USA)

9:00 **Audiovisual speech perception in cochlear implant recipients - examinations based on virtual reality**
Hartmut Meister
University of Cologne

9:20 **Audiovisual Speech Perception in Children with Autism Spectrum Disorders**
Julia Irwin[a], Trey Avery[b], Daniel Kleinman[b] and Nicole Landi[a]
[a] *Haskins Laboratories and Southern Connecticut State University;* [b] *Haskins Laboratories*

9:40 **Audio-visual stimuli for the evaluation of speech-enhancing algorithms**
Giso Grimm[a], Gerard Llorach[b], Maartje Hendrikse[a] and Volker Hohmann[a]
[a] *Carl-von-Ossietzky Universität Oldenburg;* [b] *Hörzentrum Oldenburg*

10:00 **Audio-visual scene analysis in reverberant multi-talker environments**
Axel Ahrens, Kasper Duemose Lund and Torsten Dau
Technical University of Denmark

10:20 **Loudness and distance estimates for noise bursts coming from several distances with and without visual cues to their source**
Gauthier Berthomieu, Vincent Koehl and Mathieu Paquier
University of Brest

10:40 **Auditory perception of distance to rattlesnakes in an audio-visual virtual environment**
Michael Schutte[a], Michael Forsthofer[a], Boris Chagnaud[b] and Lutz Wiegrebe[c]
[a] *Division of Neurobiology, LMU Munich;* [b] *Bereich Zoologie, Institut für Biologie, Universität Graz;* [c] *Dept. Biology II, Div. Neurobiology, LMU Munich*

18 K - Influences of multisensory processing on auditory perception
Wednesday, September 11 | Berlin 3
Chairs: J. Bizley, R. Maddox

11:00 **Reaction times in multisensory localization tasks**
Yi Zhou and Colton Clayton
Arizona State University

11:20 **Relatively Speaking: Spatial Discrimination Tasks As Tools for Studying Multisensory Integration**
Ross Maddox
University of Rochester

14:00 **Visual Recalibration of Auditory Spatial Perception Decays at Different Time Scales**
Patrick Bruns and Brigitte Röder
Universität Hamburg

14:20 **Sensory integration in parietal but not auditory cortex mediates multisensory integration and recalibration**
Hame Park and Christoph Kayser
Bielefeld University

14:40 **Temporal attention and comodulation in multisensory causal inference**
Virginie van Wassenhove[a], Daria La Rocca[b], Denis Alexander Engemann[b] and Philippe Ciuciu[b]
[a] *CEA/NeuroSpin, INSERM;* [b] *Université Paris-Saclay*

15:00 **The Role of Audiovisual Temporal Coherence in Auditory Scene Analysis**
Jennifer Bizley, Huriye Atilgan and Ana Isabel Sanchez Jimenez
University College London

15:20 **Multisensory Influences on Human Auditory Communication**
Katharina Von Kriegstein
Technische Universität Dresden

15:40 **Ageing increases the impact of audiovisual synchrony on speech comprehension in adverse listening situations**
Giulio Degano, Samuel Jones and Uta Noppeney
University of Birmingham

02 B - Acoustic and audiovisual source localization 1
Wednesday, September 11 | Lissabon 1
Chairs: M. Cobos, D. Kolossa

8:40 **Probabilistic Modeling for Learning-based Distance Estimation**
Andreas Brendel, Andy Regensky and Walter Kellermann
Friedrich-Alexander University Erlangen-Nürnberg

9:00 **Speaker Distance Estimation using Binaural Hearing Aids and Deep Neural Networks**
Mehdi Zohourian, Jakob Stinner and Rainer Martin
Ruhr-Universität Bochum

9:20 **Binaural Direction-of-Arrival Estimation in Reverberant Environments Using the Direct-path Dominance test**
Hanan Beit-On and Boaz Rafaely
Ben-Gurion University of the Negev

9:40 **Data-driven Threshold Selection for Direct Path Dominance Test**
Orhun Olgun and Huseyin Hacihabiboglu
METU Graduate School of Informatics, Ankara

10:00 **Source Localization using a Spatial Kernel based Covariance Model and Supervised Complex Nonnegative Matrix Factorization**
Antonio Jesús Muñoz Montoro, Violeta Montiel-Zafra, Julio José Carabias-Orti, Juan Torre-Cruz, Francisco Jesús Canadas-Quesada and Pedro Vera-Candeas
Universidad de Jaén

02 F - Perceptual aspects in spatial audio processing
Wednesday, September 11 | Lissabon 1
Chair: K. Brandenburg

10:20 **Perceptual Aspects in Spatial Audio Processing**
Karlheinz Brandenburg[a], Bernhard Fiedler[b], Georg Fischer[c], Florian Klein[c], Annika Neidhardt[c], Christian Schneiderwind[c], Ulrike Sloma[c], Claudia Stirnat[c] and Stephan Werner[c]
[a] *TU Ilmenau / Fraunhofer IDMT;* [b] *Fraunhofer IDMT;* [c] *TU Ilmenau*

10:40 **Perceived Quality and Plausibility of Room Reverberation in VR Reproduction from Measured Images and Acoustics**
Luca Remaggi, Hansung Kim, Adrian Hilton and Philip Jackson
University of Surrey

02 G - Phase-Aware Time-Frequency Signal Processing
Wednesday, September 11 | Lissabon 1
Chairs: F. Zotter, G. Tauböck

11:00 **On the Stability of Gabor Phase Retrieval**
Matthias Claus Wellershoff and Rima Alaifari
ETH Zürich

11:20 **Phase-Magnitude Relations and Phaseless Reconstruction for Time-Frequency and Time-Scale representations**
Nicki Holighaus, Zdenek Prusa and Günther Koliander
Institut für Schallforschung, Vienna

02 B - Acoustic and audiovisual source localization 2
Wednesday, September 11 | Lissabon 1
Chairs: M. Cobos, D. Kolossa

14:00 **Towards low cost acoustic cameras for the Internet of Things**
Jose Javier Lopez, Maximilian Becker and Carlos Hernandez
Universidad Politecnica de Valencia

14:20 **Inference in Nonlinear Dynamical Systems with dynamic Stream Weights for Audiovisual Speaker Tracking**
Christopher Schymura and Dorothea Kolossa
Ruhr University Bochum

14:40 **Audiovisual active speaker localization and enhancement for multirotor micro aerial vehicles**
Daniele Salvati, Carlo Drioli, Andrea Gulli, Gian Luca Foresti, Federico Fontana and Giovanni Ferrin
University of Udine

15:00 **Study on Large Scale Projectile Impact Point Positioning Method Based on Trajectory Shock Wave**
Difeng Sun[a], Xubin Liang[a], Tianqing Zhao[a], Houlin Fang[a], Cheng Zhang[b], Hui Zheng[a], Liangyong Zhang[a], Fang Zhang[a], Deyu Sun[a] and Yang Liu[a]
[a] *Northwest Institute of Nuclear Technology, Xi'an;* [b] *School of Mechanical Engineering, Southeast University, Nanjing*

20 D - Acoustics of cultural heritage buildings 2
Wednesday, September 11 | Lissabon 2
Chairs: F. Martellotta, Z. Sü Gül

8:40 **The Teatro Colón in Buenos Aires as a Double-Function Hall**
Gustavo Basso
Universidad Nacional de La Plata

9:00 **Physical measurements vs. auditory assessment of a concert hall by different groups of users: a case study**
Tadeusz Fidecki[a], Jan Zera[b], Andrzej Miśkiewicz[c], Barbara Okoń-Makowska[c], Tomira Rogala[c], Teresa Rościszewska[c], Ewa Więckowska-Kosmala[d], Maciej Jasiński[b] and Maciej Łukaszewicz[e]
[a] *Audiovid FF, Warsaw;* [b] *Warsaw University of Technology;* [c] *The Fryderyk Chopin University of Music;* [d] *ewkAkustika Ltd.;* [e] *Manufaktura Technologiczna Ltd.*

9:20 **Acoustical Conservative Rehabilitation of St. Roque Church, Tollecantto - Goa**
Menino Allan S. M. Peter Tavares
O Linda Goa, India

9:40 **The Acoustical Study of Heritage Buildings: A Holistic Approach**
Antonio Pedrero, María Ángeles Navacerrada, Daniel de la Prida and César Díaz
Technical University of Madrid

10:00 **Heritage and Avant-garde - On the Acoustic Design of a Series of 19th Century and Modern Australian Multipurpose Halls**
Claudiu Pop
The University of Sydney

10:40 **Analysis of the Acoustic characteristics of a Museum of Modernist Architecture - Art Museum S^{2}O Paulo Assis Chateaubriand**
Marselle Nunes Barbo and Eric Brandão
Universidade Federal de Santa Maria

11:00 **Acoustic suitability of heritage-listed buildings using BRASS software: a case study of Armando Gonzaga Theater, Rio de Janeiro, Brazil**
Guilherme Coutinho Fagerlande[a], Maria Lygia Niemeyer[a] and Julio Cesar Boscher Torres[b]
[a] *Federal University of Rio de Janeiro;* [b] *Electrical Eng. Program - Federal University of Rio de Janeiro*

11:20 Determination of the characteristics of contemporary Turkish mosque and its acoustical properties
Elma Alic and Aslı Özçevik Bilen
Eskisehir Technical University

18 N - Parcellating the functions of human auditory cortex
Wednesday, September 11 | Lissabon 2
Chairs: A. Noyce, I.S. Johnsrude

14:00 Mapping auditory specialization within human frontal cortex
Abigail Noyce[a], Sean Tobyne[a], Ray Lefco[a], James Brissenden[a], David Somers[a] and Barbara Shinn-Cunningham[b]
[a] *Boston University;* [b] *Carnegie Mellon University, Pittsburgh*

14:20 Spectral Properties of Primary and Non-primary Auditory Cortical Activity
Alexander J Billig[a], Björn Herrmann[b], Ariane E Rhône[c], Phillip E Gander[c], Kirill V Nourski[c], Beau F Snoad[c], Christopher K Kovach[c], Hiroto Kawasaki[c], Matthew A Howard[c] and Ingrid S Johnsrude[b]
[a] *UCL Ear Institute, London;* [b] *The University of Western Ontario;* [c] *The University of Iowa*

14:40 Temporal Context Invariance Reveals Neural Processing Timescales in Human Auditory Cortex
Sam Norman-Haignere[a], Laura Long[a], Orrin Devinsky[b], Werner Doyle[b], Guy McKhann[c], Catherine Schevon[c], Adeen Flinker[b] and Nima Mesgarani[a]
[a] *Columbia University;* [b] *NYU Langone Medical Center;* [c] *Columbia University Medical Center*

15:00 Spatial processing in the auditory cortex for stream segregation and localization
Martha M Shiell and Elia Formisano
Maastricht University

15:20 Assessing Perinatal Maturation of Human Primary and Nonprimary Auditory Cortex
Brian B. Monson
University of Illinois at Urbana-Champaign

15:40 What should inter-individual and inter-primate differences tell us about auditory cortical organization?
Fred Dick[a], Francesco Caprini[a] and Marty Sereno[b]
[a] *Birkbeck College, London;* [b] *San Diego State University*

24 B - Numerical analysis and experiment on structural acoustics
Wednesday, September 11 | Amsterdam
Chair: S.-H. Lee

8:40 **Measurement and Simulation of Vibration Acceleration of a High-Voltage Three-Phase Gapped-Core Reactor**
Bart van der Aa, Bart Wijnhoven, Timo Overboom and Luc Dorpmanns
Royal SMIT Transformers, Nijmegen

9:00 **Increased Radiation Efficiency Using Band Gap Effect**
Jaesoon Jung[a], Cheol-Ho Jeong[b] and Jakob S. Jensen[c]
[a] *Technical University of Denmark (DTU), Electrical Engineering, Acoustic Technology;* [b] *DTU;* [c] *DTU, Dep. of Mechanical Engineering*

9:20 **Numerical simulation of vibration damping by granular materials**
Masao Takeshima and Asakura Takumi
Tokyo University of Science

9:40 **On the estimation of DLF of highly damped structures**
Julio A. Cordioli, José V. Monteiro, Mathias Hinz, Guido T. Santos and Israel Pereira
Federal University of Santa Catarina

10:00 **Assessing the similitude of vibrating plates**
Christian Adams[a], Joachim Bös[a] and Tobias Melz[b]
[a] *SAM, TU Darmstadt;* [b] *Fraunhofer Institute for Structural Durability and System Reliability LBF*

10:20 **Construction of a vibroacoustic test bench for electric motors and investigation of the noise emission of an electric motor**
M. Ercan Altinsoy, Florian Spanka, Markus Klemm and Hong-In Won
Technische Universität Dresden, Lehrstuhl für Akustik und Haptik

10:40 **Robust Virtual Sensing of the Exterior Noise Radiation from a Complex Structure in Different Acoustic Environments**
Sjoerd van Ophem, Elke Deckers and Wim Desmet
KU Leuven/Member of DMMS Lab, Flanders Make

11:00 **The Effect of the Weld Type on Ensemble Average in SEA**
Paweł Nieradka and Sebastian Szarapow
KFB Acoustics sp. z o.o., Wroclaw

11:20 **Vibration damping capabilities of treatments with frequency and temperature dependent viscoelastic material properties**
Martin Gröhlich, Marc Böswald and René Winter
DLR - German Aerospace Center

24 G - Human Vibration
Wednesday, September 11 | Amsterdam
Chairs: M. Scholz, M.E. Altinsoy

14:00 **Relationship between Hand-arm Vibrations and subjective evaluation by a Magnitude Estimation Method : one or both hands excitation**
Luc Laroche[a], Etienne Parizet[a], Damien Piranda[b] and Frédéric Bornet[b]
[a] *Laboratoire Vibrations Acoustique INSA-Lyon;* [b] *Groupe PSA, NVH Department*

14:20 **A parameter study on measuring hand-arm vibrations of an impulsive vibrating tool applying the international standard**
Magdalena Scholz[a], Leopold Winter[a] and Steffen Marburg[b]
[a] *TUM, Chair of Vibroacoustics;* [b] *Technical University of Munich (TUM)*

14:40 **Perceived discomfort for tri-axial helicopters vibrations**
Laurianne Delcor[a], Etienne Parizet[b], Julien Caillet[c] and Julie Ganivet-Ouzeneau[c]
[a] *Airbus - LVA;* [b] *Laboratoire Vibrations Acoustique INSA-Lyon;* [c] *Airbus*

15:00 **Comfort Evaluation on the drivers using Transfer Path Analysis**
Nihlatul Falasifah and Dhany Arifianto
Institut Teknologi Sepuluh Nopember, Surabaya, Indonesia

21 O - Sound as part of digitalization of the Unesco and Unique sites
Wednesday, September 11 | K3
Chairs: J. Wiciak, F. Zotter

8:40 **Analysis of ambient noise influence on recording of unique Arctic soundscape - Kapp Linné, Svalbard**
Dorota Czopek, Pawel Malecki, Janusz Piechowicz and Jerzy Wiciak
AGH University of Science and Technology, Krakow

9:00 **Digitalizing the sounds of the past: the soundscapes of World Heritage rock art landscapes from Spain and Mexico**
Angelo Farina[a], Margarita Díaz-Andreu[b], Enrico Armelloni[c], Mathieu Picas[d], Leslie Zubieta[d] and Tommaso Mattioli[d]
[a] *University of Parma;* [b] *ICREA and University of Barcelona;* [c] *AIDA Srl - Spinoff Company of University of Parma;* [d] *University of Barcelona*

21 N - Trends on the use of technology in soundscape analysis, design and planning
Wednesday, September 11 | K3
Chairs: A. Chung, A. Radicchi

9:20 **New Trends in Sound Planning using Immersive Virtual Reality Technology**
Andy Chung[a], Terence Tsang[b] and W M To[c]
[a] *Macau Instituto de Acústica;* [b] *Hong Kong EPD;* [c] *Macao Polytechnic Institute*

9:40 **Design for quiet living: tracing the development of projects in noise-affected areas with software-based data analysis and visualization**
Cristina Calleri[a], Louena Shtrepi[b], Alessandro Armando[c] and Arianna Astolfi[d]
[a] *Politecnico di Torino;* [b] *Politecnico di Torino - DENERG;* [c] *Deparment of Architecture and Design, Politecnico di Torino;* [d] *Politecnico di Torino - Dep. of Energy*

21 F - Indoor soundscaping and acoustic comfort
Wednesday, September 11 | K3
Chairs: S. Graetzer, P.N. Dokmeci Yorukoglu, F. Aletta

10:20 **Designing spaces and soundscapes. Integrating sonic previews in architectural modelling applications.**
Alessia Milo[a] and Joshua Reiss[b]
[a] *MAT, C4DM, EECS, QMUL, London;* [b] *C4DM, EECS, QMUL, London*

10:40 **The role of indoor soundscape methodology: From architectural design process to establishment of regulations**
Ugur Beyza Ercakmak and Papatya Nur Dokmeci Yorukoglu
Cankaya University, Ankara

11:00 **Characterization of the indoor kitchen soundscape**
Pieter Thomas[a], Luc Dekoninck[a], Stephanie van Hove[b], Anissa All[b], Peter Conradie[b], Lieven de Marez[b], Henk Huisseune[c], David Plets[d] and Dick Botteldooren[d]
[a] *Ghent University;* [b] *imec-mict-UGent, Department of Communication Sciences, Ghent University;* [c] *Novy NV;* [d] *WAVES research group, Department of Information Technology, Ghent University*

11:20 **Correlations between sound level and loudness, intimacy, reverberation, clarity, spaciousness in sequential spaces**
Tingting Yang and Jian Kang
University College London

14:00 **Towards Understanding Healthy and Supportive Acoustic Environments: the Case of a Nursing Home**
Paul Devos[a], Pieter Thomas[a], Francesco Aletta[b], Tara Vander Mynsbrugge[c], Patricia de Vriendt[c], Dominique van de Velde[c] and Dick Botteldooren[d]
[a] *Ghent University;* [b] *University College London;* [c] *Artevelde University College Ghent;* [d] *WAVES research group, Dep. of Information Technology, Ghent University*

14:20 **Pleasantness of Typical Acoustic Environments inside a Living Room in a European Residential Context.**
Romain Dedieu[a], Catherine Lavandier[b], Cédric Camier[a] and Sylvain Berger[a]
[a] *Saint-Gobain Research Paris;* [b] *Université de Cergy-Pontoise*

14:40 **Acoustic Comfort in Multi-group Conversation Space: a Field Experiment in an Actual Cafe with Different BGM Levels**
Naoya Maruyama[a], Yasuhiro Hiraguri[b], Keiji Kawai[a] and Mari Ueda[c]
[a] *Kumamoto University;* [b] *Kindai University;* [c] *Kanagawa Institute of Technology*

15:00 **Searching the Industrial Soundscape of The Urban Past of An Anatolian City: Eskişehir**
Özlem Gök Tokgöz, Aslı Özçevik Bilen and Özlem Kandemir
Eskisehir Technical University

15:20 **Can natural sound assist in the treatment of depression?**
Yuzhe Ge and Hui Xie
Chongqing University

15:40 **The soundscape dimensions of third-class hospital ward in Indonesia**
Anugrah Sabdono Sudarsono, Sugeng Joko Sarwono, Aisyah Shabrina and Laudita Natasha Tamrin
Institut Teknologi Bandung

08 K - European harmonized calculation model for environmental noise CNOSSOS
- EUROREGIO Session -
Wednesday, September 11 | K4
Chairs: B. Peeters, A. Kok

8:40 **Flaws in the Cnossos Calculation Method and Proposed Solutions**
Arnaud Kok
RIVM, Bilthoven

9:00 **Establishing noise emission for an electric road vehicle category in CNOSSOS-EU**
Bert Peeters[a], Erik de Graaff[a], Hilary Notley[b], Simon Shilton[c] and Matthew Muirhead[d]
[a] *M+P, Vught;* [b] *DEFRA, UK;* [c] *acustica, Manchester;* [d] *AECOM, UK*

9:20 The determination of road surface corrections for CNOSSOS-EU model for the emission of road traffic noise
Fabienne Anfosso Ledee[a] and Luc Goubert[b]
[a] *IFSTTAR;* [b] *Belgian Road Research Centre*

9:40 Transposition of CNOSSOS-EU into German Law
René Weinandy and Thomas Myck
German Environment Agency

10:00 Implementation of CNOSSOS-EU method for road noise in Italy
Gonzalo De Leon[a], Francesco Fidecaro[a], Mauro Cerchiai[b], Marco Reggiani[b], Elena Ascari[c] and Gaetano Licitra[d]
[a] *University of Pisa, Physics Department;* [b] *Agenzia Regionale per la Protezione Ambientale della Toscana, ARPAT;* [c] *Italian National Council of Research IDASC;* [d] *ARPAT - Environmental Protection Agency of Region of Tuscany, Area Vasta Costa*

10:20 Matching noise emission from French medium-heavy vehicles and CNOSSOS models
Marie-Agnès Pallas[a], Adrien Le Bellec[a] and David Ecotiere[b]
[a] *IFSTTAR, UMRAE (F);* [b] *Cerema Méditerranée, Aix-en-Provence*

10:40 The First Agglomeration Noise Maps in Niš, Serbia, Using CNOSSOS-EU:2015
Simon Shilton[a], Rafdouglas Tommasi[b], Jiri Michalik[c], Álvaro Grilo[d], Kristina Peric[e] and Ivana Krstic[f]
[a] *acustica, Manchester;* [b] *Tommasi and Tommasi;* [c] *Institute of Public Health, Ostrava;* [d] *INERCO, Seville;* [e] *Ministry of Environmental Protection, Novi Beograd;* [f] *Department of Environmental Protection (Serbia)*

08 H - EPA Network-IGNA: Progress report on the impact, technology and regulations to abate noise in Europe
- EUROREGIO Session -
Wednesday, September 11 | K4
Chairs: H. Boegli, R. Weinandy

11:00 The EPA-Network Interest Group of Noise Abatement (IGNA)
Urs Walker[a], René Weinandy[b], Hans Boegli[a] and Nina Mahler[a]
[a] *Federal Office for the Environment (CH);* [b] *Umweltbundesamt (D)*

11:20 Recommendations for Traffic Noise Abatement
René Weinandy[a], Hans Boegli[b] and Urs Walker[b]
[a] *Umweltbundesamt (D);* [b] *Federal Office for the Environment (CH)*

14:00 Problems of Road Traffic Noise Annoyance and Sleep Disturbance in Some Slovakian Cities
Ladislav Mihalcik[a], Stanislav Sekretar[b], Jana Jurkovicova[b], Jan Simonovic[c] and Lubica Argalasova[b]
[a] *St. Elizabeth University of Health and Social Sciences, Bratislava, Slovakia;* [b] *Comenius University in Bratislava, Slovakia;* [c] *Sky-Eco, s.r.o., Bratislava, Slovakia*

14:20 Overview of environmental noise limits in the European Region
Rosan Nusselder and Bert Peeters
M+P (Netherlands)

14:40 Assessment of Quiet Areas in Europe
Eulalia Peris[a], Nuria Blanes Guardia[b], Jaume Fons-Esteve[c] and Miquel Sáinz De La Maza[c]
[a] *European Environment Agency, Copenhagen;* [b] *Autonomous University of Barcelona;* [c] *Departament de Geografia, Universitat Autònoma de Barcelona*

15:00 Noise Advocacy
Tony Paul Dolan
Irish EPA, Wexford

15:20 New trends in noise abatement
Hans Boegli[a], Urs Walker[a] and René Weinandy[b]
[a] *Federal Office for the Environment (CH);* [b] *Umweltbundesamt (D)*

10 D - Road Traffic Noise Prediction Methods
Wednesday, September 11 | K5
Chairs: S. Sakamoto, K. Yamauchi

8:40 Road Traffic Noise Prediction Model "ASJ RTN-Model 2018" Proposed by The Acoustical Society of Japan - Part 1: Outline of the calculation model
Shinichi Sakamoto[a], Yasuaki Okada[b], Akinori Fukushima[c], Toshio Matsumoto[d] and Terutoshi Tajika[e]
[a] *Institute of Industrial Science, The University of Tokyo;* [b] *Meijo University;* [c] *NEWS Environmental Design Inc.;* [d] *Kobayasi Institute of Physical Research;* [e] *Environmental Technical Laboratory Ltd.*

9:00 Road Traffic Noise Prediction Model "ASJ RTN-Model 2018" Proposed by The Acoustical Society of Japan - Part 2: Calculation Model of Sound Emission of Road Vehicles
Yasuaki Okada[a], Akinori Fukushima[b], Katsuya Yamauchi[c] and Shinichi Sakamoto[d]
[a] *Meijo University;* [b] *NEWS Environmental Design Inc.;* [c] *Kyushu University, Faculty of Design;* [d] *Institute of Industrial Science, The University of Tokyo*

9:20 Road Traffic Noise Prediction Model "ASJ RTN-Model 2018" Proposed by The Acoustical Society of Japan - Part 3: Calculation model of sound propagation
Akinori Fukushima[a], Shinichi Sakamoto[b], Yosuke Yasuda[c] and Takatoshi Yokota[d]
[a] *NEWS Environmental Design Inc.;* [b] *Institute of Industrial Science, The University of Tokyo;* [c] *Kanagawa University;* [d] *Kobayasi Institute of Physical Research*

9:40 Road Traffic Noise Prediction Model "ASJ RTN-Model 2018" Proposed by The Acoustical Society of Japan - Part 4: Accuracy Verification of a Practical Method for Areas behind Buildings in Urban Districts
Ken Anai[a], Toshio Matsumoto[b], Takatoshi Yokota[b] and Shinichi Sakamoto[c]
[a] *Fukuoka University, Faculty of Engineering;* [b] *Kobayasi Institute of Physical Research;* [c] *Institute of Industrial Science, The University of Tokyo*

10:20 Road Traffic Noise Prediction Model "ASJ RTN-Model 2018" Proposed by The Acoustical Society of Japan - Part 5: Study on Prediction Accuracy
Katsuya Yamauchi[a], Terutoshi Tajika[b], Akinori Fukushima[c] and Ken Anai[d]
[a] *Kyushu University, Faculty of Design;* [b] *Environmental Technical Laboratory Ltd.;* [c] *NEWS Environmental Design Inc.;* [d] *Fukuoka University, Faculty of Engineering*

10:40 Experimental Modelling of Tyre/Road Noise from Road Texture Spectra on Rubberized Road Surfaces
Alessandro Del Pizzo[a], Gonzalo De Leon[a], Luca Teti[b], Francesco Bianco[b], Antonino Moro[c], Luca Fredianelli[a] and Gaetano Licitra[d]
[a] *University of Pisa, Physics Department;* [b] *iPOOL srl;* [c] *Italian National Council of Research IPCF;* [d] *ARPAT - Environmental Protection Agency of Region of Tuscany, Area Vasta Costa*

11:00 An Australian case study on the estimation of heavy vehicle noise emission on grade
Jeffrey Peng[a], Daipei Liu[a], Jeffrey Parnell[b] and Nicole Kessissoglou[a]
[a] *UNSW Sydney;* [b] *UNSW, Department of Planning and Environment*

11:20 Vehicular traffic noise in bus station users modeling and prediction, based on the analysis of direct and specular paths
Dayane Cristina Lima Estercio and Paulo Fernando Soares
State University of Maringa

14 A - Signal processing and inversion in underwater acoustics 1
Wednesday, September 11 | K5
Chairs: M. Taroudakis, S. Dosso

14:00 Extraction of Interface Wave Dispersion Curves from Ocean Ambient Noise
Hefeng Dong[a], Guoli Wu[b] and Ganpan Ke[c]
[a] *Norwegian University of Science & Technology, Trondheim;* [b] *National University of Defense Technology, Changsha;* [c] *Equinor ASA*

14:20 Effect of a soft sediment layer on acoustic normal mode propagation and geoacoustic inversion in the New England Mud Patch
Gopu R Potty and James H Miller
University of Rhode Island

14:40 Underwater Acoustic Localization of Pulsed Sources with an Array of Three Hydrophones
Emmanuel Skarsoulis and Despoina Pavlidi
FORTH, Institute of Applied and Computational Mathematics, Heraklion

15:00 Bayesian Geoacoustic inversion for SBCEX17 Reflection, Dispersion, and Ship-noise Data
Stan Dosso[a], Charles Holland[b], Julien Bonnel[c], Dag Tollefsen[d], Josee Belcourt[a], Jan Dettmer[e] and David Knobles[f]
[a] *University of Victoria;* [b] *Pennsylvania State University;* [c] *Woods Hole Oceanographic Institution;* [d] *Norwegian Defence Research Establishment;* [e] *University of Calgary;* [f] *Knobles Scientific and Analysis*

09.1 G - Response to transportation noise and vibration
Wednesday, September 11 | K6
Chairs: S. Yokoshima, O. Breugelmans

8:40 Combined effect of vibrations on railway noise annoyance
Shigenori Yokoshima[a], Takashi Morihara[b] and Yasunao Matsumoto[c]
[a] *Kanagawa Environmental Research Center;* [b] *National Institute of Technology, Ishikawa College;* [c] *Saitama University*

9:00 Experimental Investigation of Evaluation Method of Horizontal Vibration in Building Caused by External Vibration Sources
Kentaro Hayashi[a], Yasunao Matsumoto[b] and Toyohiko Higashida[c]
[a] *Benec Vibration Acoustics Consultants;* [b] *Saitama University;* [c] *Sekisui House, Ltd.*

9:20 Case examples of the measurement of vibration and annoyance response in residential buildings beside roads and railways
Yasunao Matsumoto[a], Shigenori Yokoshima[b] and Kentaro Hayashi[c]
[a] *Saitama University;* [b] *Kanagawa Environmental Research Center;* [c] *Benec Vibration Acoustics Consultants*

9:40 Annoyance reactions due to noise and vibrations caused by different train types in Sweden: results from the EpiVib study
Elise van Kempen[a], Mikael Ögren[b], Laura Maclachlan[b], Laith Hussain-Alkatheeb[b] and Kerstin Persson Waye[b]
[a] *Netherlands National Institute for Public Health and the Environment;* [b] *University of Gothenburg, Dep. of Occupational & Environmental Medicine, Sweden*

10:00 Effects of changes in operational and residential factors on public health and reactions at the vicinity of Noi Bai International Airport
Thulan Nguyen[a], Bach Lien Trieu[a], Takashi Yano[b], Takashi Morihara[c], Yasuhiro Hiraguri[d] and Makoto Morinaga[e]
[a] *Shimane University;* [b] *Graduate school of Science and Technolody, Kumamoto University;* [c] *National Institute of Technology, Ishikawa College;* [d] *Kindai University;* [e] *DFEIA, Tokyo*

09.2 B - Cognitive effects
Wednesday, September 11 | K6
Chairs: M. Klatte, C. Clark

10:40 **Comparing intentional switching of auditory selective attention in children and adults in an experiment suited for children**
Karin Loh[a], Edina Fintor[b], Sophie Nolden[c] and Janina Fels[a]
[a] *Teaching and Research Area of Medical Acoustics, Institute of Technical Acoustics, RWTH Aachen University;* [b] *RWTH Aachen University, Institute of Psychology;* [c] *Goethe-University Frankfurt am Main, Developmental Psychology*

11:00 **Effects of irrelevant background speech on verbal working memory tasks**
Maria Klatte, Kirstin Bergström and Thomas Lachmann
Technische Universität Kaiserslautern

11:20 **Remembering landmarks in a virtual maze: Does the disturbance impact of background speech depend on the spatial information inherent in the speech signal?**
Sabine Schlittmeier and Edina Fintor
RWTH Aachen University, Institute of Psychology

09.2 A - Sleep
Wednesday, September 11 | K6
Chairs: M. Basner, M. Smith

14:00 **Pilot Field Study on the Effects of Aircraft Noise on Sleep Around Atlanta International Airport**
Mathias Basner[a], Michael Smith[b], Sarah Rocha[a] and Maryam Witte[a]
[a] *University of Pennsylvania;* [b] *Univ. of Pennsylvania Perelman School of Medicine*

14:20 **Effects of nocturnal aircraft noise on objective and subjective sleep quality in primary school children**
Susanne Bartels, Julia Quehl and Daniel Aeschbach
DLR - German Aerospace Center

14:40 **The effect of road traffic noise spectrum on sleep**
Valtteri Hongisto[a] and Saana Myllyntausta[b]
[a] *Turku University of Applied Sciences;* [b] *University of Turku*

15:00 **Traffic Noise and its Impact on Sleep Depth Measured by the Odds Ratio Product**
Michael Smith[a], Magdy Younes[b], Daniel Aeschbach[c], Uwe Müller[c] and Mathias Basner[d]
[a] *University of Pennsylvania Perelman School of Medicine;* [b] *University of Manitoba;* [c] *DLR - German Aerospace Center;* [d] *University of Pennsylvania*

15:20 **Do characteristics of short term transportation noise exposure fluctuation better predict self-reported sleep disturbances than Leq-based average noise metrics?**
Mark Brink
Swiss Federal Office for the Environment

11 B - Wind turbine noise: Generation and propagation
Wednesday, September 11 | K7/8
Chair: F. Bertagnolio

8:40 **In Situ Measured Facade Sound Insulation of Wind Turbine Sound**
Pontus Thorsson
Akustikverkstan AB, Lidköping

9:00 **Prediction of Broadband Noise Generated from Turbulent Boundary Layers of a Horizontal Axis Wind Turbine**
Soichi Sasaki[a] and Moe Htet Zaw[b]
[a] *Nagasaki University;* [b] *Mandalay Technological University*

11 A - Outdoor sound propagation (including urban sound propagation)
Wednesday, September 11 | K7/8
Chair: T. van Renterghem

9:20 **Modelling reflections from single trees and entire forests**
Jean Marc Wunderli
Empa, Swiss Federal Laboratories for Materials Science and Technology

9:40 **Applying the diffusion equation to urban scenarios: Computational analysis of the diffusion coefficient**
Raúl Pagán Muñoz[a], Juan Miguel Navarro Ruiz[b] and Maarten Hornikx[a]
[a] *Eindhoven University of Technology;* [b] *Universidad Católica San Antonio Murcia*

10:00 **Solution of wide-angle parabolic equations for long-range sound propagation in a moving medium**
David Keith Wilson, Michael Muhlestein, Vladimir Ostashev, Michael J. Shaw, Michelle Swearingen and Sarah McComas
U.S. Army Engineer Research and Development Center

10:20 **Uncertainty Analysis of Environmental Sound : Analysis of a Series of Field Experiments**
John Fenlon
University of Warwick

10:40 **Model Test Stand for Acoustic Scattering**
Wolfram Bartolomaeus
Federal Highway Research Institute, Germany

11:00 **On Generation And Propagation Of Acoustic Surface Waves Over Rough, Periodic Surfaces**
Shahram Taherzadeh[a], Alex Stronach[a], David Berry[b] and Keith Attenborough[a]
[a] *The Open University, Milton Keynes (UK);* [b] *University of Êvora*

11:20 **A data bank of outdoor transfer functions**
Sylvain Cheinet, Loic Ehrhardt, Matthias Cosnefroy and Adrien Dagallier
French-German Research Institute of Saint-Louis

14:00 **Comparison of ASJ RTN-Model 2013 and the Harmonoise Engineering Model under Thick Barrier Configurations**
Takuya Oshima, Azusa Hoshikawa and Yumi Kurosaka
Niigata University

14:20 **Managing the Uncertainty of Long-distance Sound Propagation from a Large Industrial Noise Source**
Tim Procter[a], Deanna Tomerini[a] and Alan Lex Brown[b]
[a] *Griffith University;* [b] *Griffith School of Environment, Griffith University, Australia*

14:40 **Selection of the correction due to receiver location when performing environmental noise measurements using microphone array**
Luka Čurović
University of Ljubljana

15:00 **Propagation of Bird Vocalizations in the Alpine Environment**
Didier Dragna[a], Loïc Berger[a], Sébastien Ollivier[b] and Frédéric Sèbe[c]
[a] *LMFA, Ecole Centrale de Lyon;* [b] *LMFA, Université Lyon 1;* [c] *ENES-CNPS, Université Jean Monnet*

15:20 **Prediction of atmospheric sound propagation subject to parameter variability of atmospheric turbulence**
Jasmin Hörmeyer, Clemens Hübler, Tobias Bohne and Raimund Rolfes
Leibniz Universität Hannover - ISD

01 B - Applications of active control of noise and vibration
Wednesday, September 11 | K9
Chairs: S. Herold, E. Rustighi

8:40 **Theoretical and Experimental Analysis of a Skyhook Damper for Active Control of Sound Transmission**
Neven Alujević[a], Steven Claes[b], Martina Šimag[a] and Paul Sas[b]
[a] *University of Zagreb;* [b] *KU Leuven*

9:00 **Hybrid Mass Damper Using Electromagnetic Resonator: Application to a Helicopter**
Simon Chesne[a], Guillaume Inquieté[b] and Paul Cranga[b]
[a] *Univ Lyon, INSA-Lyon, CNRS UMR5259, LaMCoS;* [b] *Airbus Helicopter*

9:20 **Active Engine Mount**
Stefan Loheide
BOGE Elastmetall GmbH

9:40 **Simulation-Based Multi-Objective Optimization of a Fuzzy Controller for Semi-Active Suspension**
Louis Balzer, Valentin Mees, Jonathan Millitzer and Giovanni Lapiccirella
Fraunhofer Institute for Structural Durability and System Reliability LBF

10:20 **Design and applications of lean active resonator silencer cassettes**
Jens Rohlfing, Karlheinz Bay and Peter Brandstätt
Fraunhofer Institute for Building Physics IBP

10:40 **A boundary virtual sound barrier system for sound radiation through openings with double-layer secondary sources and error microphones**
Shuping Wang[a], Xiaojun Qiu[a] and Jiancheng Tao[b]
[a] *University of Technology Sydney;* [b] *Nanjing University*

03 A - Acoustical Signal Processing in biological systems: Mathematical Methods and Algorithms
Wednesday, September 11 | K9
Chairs: H. Führ, P. Balazs

14:00 **Frame Theory for Psychoacoustics**
Peter Balazs[a], Nicki Holighaus[b], Thibaud Necciari[a] and Diana Stoeva[a]
[a] *Acoustics Research Institute, Austrian Academy of Sciences, Vienna;* [b] *Institut für Schallforschung, Vienna*

14:20 **A Localization Algorithm based on Head-Related Transfer Functions**
Maike Gerhard, Patrick Schillberg, Hermann Wagner and Hartmut Führ
RWTH Aachen University

03 B - Evolution of the ear
Wednesday, September 11 | K9

14:40 **Evolution of Hearing in the Early tetrapods and Emergence of the Tympanic Middle Ear**
Jakob Christensen-Dalsgaard
University of Southern Denmark, Odense

15:00 **Why did Solid Otoliths evolve in the Ears of Modern Bony Fishes?**
Tanja Schulz-Mirbach[a], Martin Plath[b], Friedrich Ladich[c] and Martin Heß[a]
[a] *Ludwig-Maximilians-University Munich, Department Biology II, Zoology;* [b] *Northwest A&F University, College of Animal Science & Technology;* [c] *University of Vienna, Department of Behavioural Biology*

Sessions and Posters on Thursday, 12 September

Keynote Thursday
Thursday, September 12 | Europa
Abstract: see page 58
Chair: Torsten Dau

11:45 **The ear at the age of IoT**
Jeremie Voix
Université du Québec, Montréal

Topic 16 - Posters: Musical acoustics
Thursday, September 12 | Poster Forum: 15:40-16:20 | Foyer

- **Influence of orthotropic properties on vibration of violin top plates**
  Masao Yokoyama[a], Riccardo Roberto De Lucia[b], Fabio Antonacci[b] and Augusto Sarti[b]
  [a] *Meisei University, Tokyo;* [b] *Politecnico di Milano*
- **Direct and inverse Hopf bifurcation in a neutral delay differential equation model of reed conical instrument**
  Tom Colinot, Louis Guillot and Jean Kergomard
  LMA CNRS Marseille
- **On the cutoff frequency of conical woodwind instruments**
  Jean Kergomard[a], Erik Petersen[a], Tom Colinot[a], Philippe Guillemain[a] and Michael Jousserand[b]
  [a] *LMA CNRS Marseille;* [b] *Buffet-Crampon, Mantes-la-Ville*
- **Reconsiderung the method of evaluation for tempo estimation**
  Madoka Okemoto and Masanobu Miura
  Hachinohe Institute of Technology
- **Differences and similarities in the production mechanism of reeds, brass, and voice: the source-filter viewpoint**
  Bernd Kröger
  RWTH Aachen University
- **Sparse Modeling of Musical Instruments Sounds in Time-frequency Domain**
  Hiromu Ogi[a], Kohei Yatabe[a], Yasuhiro Oikawa[a], Yusuke Miyagi[b] and Koji Oishi[b]
  [a] *Waseda University, Tokyo;* [c] *KORG INC.*
- **Effects of classical, film and video game music on creativity**
  Tomohiro Murata and Nao Hodoshima
  Tokai University

- **Numerical Approach for Aerodynamics around a tone hole with a moving pad: an example solving moving boundary problems with topological change**
  Taizo Kobayashi[a], Daiki Wakasa[b], Sho Iwagami[b], Toshiya Takami[c] and Kin'Ya Takahashi[b]
  [a] *Kyushu University;* [b] *Kyushu Institute of Technology;* [c] *Oita University*
- **Mridangam shell-cavity analytical acoustic model for shape sensitivity studies**
  Harikanth Mohandas and Chandramouli Padmanabhan
  IIT Madras, India
- **Reproduction of shakuhachi from X-ray CT images by additive manufacturing**
  Arisa Kuramoto[a], Yoshinori Takahashi[b] and Akisato Mizuno[c]
  [a] *Tokyo Metropolitan College of Industrial Technology;* [b] *TMCIT, Tokyo;* [c] *Kogakuin University*

Topic 18 - Posters: Physiological, psychological and audiological acoustics
Thursday, September 12 | Poster Forum: 15:40-16:20 | Foyer

- **Meniere's Disease Prognosis by Learning from Transient- Evoked Otoacoustic Emission Signals**
  Sheng-Lun Kao[a], Han-Wen Lien[a], Tzu-Chi Liu[a], Hau-Tieng Wu[b], Te-Yung Fang[c], Pa-Chun Wang[c] and Yi-Wen Liu[a]
  [a] *National Tsing Hua University, Taiwan;* [b] *Duke University, Durham (USA);* [c] *Cathay General Hospital, Taiwan*
- **Tonotopic Sensitivity to Supra-Threshold Hearing Deficits of the Envelope Following Response Evoked by Broadband Stimuli**
  Sarineh Keshishzadeh, Viacheslav Vasilkov and Sarah Verhulst
  Ghent University
- **Influence caused by placement of a bone-conducted vibrator on sound transmission**
  Xiuyuan Qin, Sho Otsuka and Seiji Nakagawa
  Chiba University
- **The Pitch of Synchronized Spontaneous Otoacoustic Emission Does Not Sound Familiar to Ears that Emit It**
  Tsung-Tai Liao, Ching-Yun Hsu, Han-Wen Lien and Yi-Wen Liu
  National Tsing Hua University, Taiwan
- **Assessment of adjustment to electrical threshold (T) level and electrical stimulation rate on IDL and AM detection at soft presentation level in adult CI users**
  Terry Nunn[a], Tim Green[b], Dan Jiang[c], Patrick Boyle[d] and Deborah Vickers[e]
  [a] *University College London / GSTT;* [b] *University College London;* [c] *ENT / Hearing Implant Centre;* [d] *Advanced Bionics GMBH;* [e] *University of Cambridge*

- **Binaural Sound Localisation Directly From The Raw Waveform**
  Ning Ma, Paolo Vecchiotti and Guy Brown
  University of Sheffield

- **Predicting binaural effects in perceived listening effort**
  Jan Rennies-Hochmuth[a], Christopher Hauth[b] and Thomas Brand[b]
  [a] *Fraunhofer IDMT, Projektgruppe HSA;* [b] *University of Oldenburg*

- **Spatial cue distortions within a virtualized sound field caused by an additional listener**
  Sergio Luiz Aguirre[a], Lars Bramslow[b], Thomas Lunner[b] and William Mcallister Whitmer[a]
  [a] *Hearing Sciences-Scottish Section, Glasgow;* [b] *Eriksholm Research Centre*

- **Evaluation of Auditory Reality and Hearing Aids Using an Ecological Momentary Assessment (EMA) Approach**
  Niels Søgaard Jensen[a], Ole Hau[a], Dina Lelic[a], Petra Herrlin[b], Florian Wolters[b] and Karolina Smeds[b]
  [a] *Widex A/S;* [b] *Widex A/S, ORCA Europe*

- **3D Localization of Speech by Mildly and Moderately Hearing-Impaired Persons in Ecological Environments**
  Laurent S. R. Simon[a], Andrea Kegel[a], Hannes Wüthrich[b] and Norbert Dillier[a]
  [a] *University Hospital Zürich;* [b] *Sonova AG*

- **Integration of speech information (or not) across electric and acoustic modes in hearing impaired listeners.**
  Bob McMurray and Michael Seedorff
  University of Iowa

- **Glimpsed Periodicity Features and Recursive Bayesian Estimation for modeling attentive voice tracking**
  Joanna Luberadzka, Hendrik Kayser and Volker Hohmann
  University of Oldenburg

- **Prediction of Speech Intelligibility Based on Deep Machine Listening: Influence of Training Data and Simulation of Hearing Impairment**
  Jana Roßbach, Birger Kollmeier and Bernd T. Meyer
  Medizinische Physik & Cluster of Excellence Hearing4All, Universität Oldenburg

- **Spatial Speech Intelligibility Map Rendering for Hearing Device Users with TASCAR, openMHA, and FADE**
  Marc René Schädler
  University of Oldenburg

- **Effects of Audiovisual Expression of Emotion on Age Perception**
  Sumi Shigeno
  Aoyama Gakuin University, Tokyo

- **Reinforced statistical learning of auditory categories: A preliminary report of cognitive, cortical and computational mechanisms**
  Bob McMurray, Samantha Chiu and John Freeman
  University of Iowa
- **Effects of vibrator placement in the auricle on cartilage- conduction hearing: Assessments of detection threshold and ear canal sound pressure**
  Toru Jitsukawa, Sho Otsuka and Seiji Nakagawa
  Chiba University
- **Reversing Degraded Auditory Processing Using Targeted Plasticity**
  Yuko Tamaoki, Jonathan Riley, Michael Borland, Seth Hays, Crystal T Engineer and Michael Kilgard
  University of Texas at Dallas
- **Demodulation Characteristics in Propagation Process of Amplitude-modulated Bone-conducted Ultrasound Presented to the Neck, Trunk and Arms**
  Koichiro Doi, Ogino Riki, Sho Otsuka and Seiji Nakagawa
  Chiba University, Japan
- **Targeted Neuroplasticity in Rat Primary Auditory Cortex with Vagus Nerve Stimulation and Near-Threshold Tones**
  Alan Michael Carroll
  University of Texas at Dallas
- **Evaluation of Propagation Characteristics of Bone- conducted Ultrasound Presented to the Neck, Trunk and Arms**
  Ogino Riki, Sho Otsuka and Seiji Nakagawa
  Chiba University
- **Correlative changes of medial olivocochlear bundle reflex and electroencephalographic activity during sleep**
  Yuto Suzuki, Sho Otsuka and Seiji Nakagawa
  Chiba University
- **On the frequency limit of interaural time difference sensitivity for pure tones**
  Helen Theresa Heinermann, Jonas Klug, Sven Herrmann, Go Ashida, Jörg Encke and Mathias Dietz
  Universität Oldenburg
- **Multivariate Statistical Analysis for Acoustical Characteristics of the Onomatopoeic Expression on Tinnitus**
  Takahiro Tamesue
  Yamaguchi University
- **Effects of a preceding sound on medial olivocohlear bundle reflex as a function of the preceding time interval**
  Sho Otsuka[a], Seiji Nakagawa[a] and Shigeto Furukawa[b]
  [a] *Chiba University;* [b] *NTT Communication Science Laboratories*

- **Voice conversion model for estimation of transmission characteristics in auditory feedback**
  Shota Morita[a], Daiki Kawamoto[a] and Teruki Toya[b]
  [a] *Fukuyama University;* [b] *Japan Advanced Institute of Science and Technology*

18 O - Speech enrichment: listening effort and intelligibility POSTER SESSION
Thursday, September 12 | Berlin 1
Chairs: M. Cooke, V. Hohmann

- **Speech enrichment: Listening effort and intelligibility**
  Anna Exenberger and Paul Iverson
  UCL London
- **Fundamental research on the verbal transformation effect in Japanese**
  Seiya Funatsu[a] and Masako Fujimoto[b]
  [a] *Prefectural University of Hiroshima;* [b] *Waseda University, Tokyo*
- **Talker intelligibility and listening effort: The role of speaking rate**
  Maximillian Paulus[a], Valerie Hazan[a], Anita Wagner[b] and Patti Adank[a]
  [a] *University College London;* [b] *University Medical Center Groningen*
- **Differences between Native and Non-Native Lombard Speech in terms of pitch range**
  Katherine Pearl Marcoux and Mirjam Ernestus
  Centre for Language Studies, Radboud University, Nijmegen
- **Benefits of the WaveNet-Based Speech Intelligibility Enhancement for Normal and Hearing Impaired Listeners**
  Muhammed Shifas Padinjaru Veettil[a], Carol Chermaz[b], Theognosia Chimona[c], Vassilis Tsiaras[a] and Yannis Stylianou[d]
  [a] *Speech Signal Processing Laboratory (SSPL), University Of Crete, Greece;* [b] *The Centre for Speech Technology Research, The University of Edinburgh, UK;* [c] *ENT consultant, General Hospital of Chania, Greece;* [d] *University of Crete, Greece*
- **Individual Articulatory Control in Speech Enrichment**
  Chen Shen[a], Martin Cooke[b] and Esther Janse[a]
  [a] *Radboud University, Nijmegen;* [b] *University of the Basque Country*
- **Near End Listening Enhancement in Realistic Environments**
  Carol Chermaz[a], Cassia Valentini-Botinhao[a], Henning Schepker[b] and Simon King[a]
  [a] *The Centre for Speech Technology Research, The University of Edinburgh;* [b] *Dept. Medical Physics and Acoustics, University of Oldenburg*
- **Listeners' Speech Rate Preferences in Stationary and Modulated Maskers**
  Olympia Simantiraki and Martin Cooke
  University of the Basque Country
- **A Multifaceted Enrichment of Oesophageal Speech**
  Sneha Raman, Inma Hernaez, Eva Navas and Luis Serrano
  University of the Basque Country (UPV/EHU)

- **Weighted Generative Adversarial Network for many-to-many Voice Conversion**
  Dipjyoti Paul[a], Yannis Pantazis[b] and Yannis Stylianou[a]
  [a] *University of Crete, Greece;* [b] *Institute of Applied and Computational Mathematics, FORTH, Greece*

- **Towards a Neural-Based Single Channel Speech Enhancement Model for Hearing-Aids**
  Muhammed Shifas Padinjaru Veettil[a], Claudio Santelli[b] and Yannis Stylianou[c]
  [a] *Speech Signal Processing Laboratory (SSPL), University Of Crete, Greece;* [b] *Sonova AG, Switzerland;* [c] *University of Crete, Greece*

- **Word error and confusion patterns in an audiovisual German matrix sentence test (OLSA)**
  Gerard Llorach[a] and Volker Hohmann[b]
  [a] *Hörzentrum Oldenburg;* [b] *University of Oldenburg*

- **EEG alpha power as a measure of listening effort reduction in adverse conditions**
  Amy Jane Hall[a], Axel Winneke[a] and Jan Rennies-Hochmuth[b]
  [a] *Fraunhofer IDMT;* [b] *Fraunhofer IDMT, Projektgruppe HSA*

- **Differences in Processing Speech-on-Speech Between Musicians and Non-musicians: The Role of Prosodic Cues**
  Elif Canseza Kaplan[a], Deniz Baskent[a] and Anita Wagner[b]
  [a] *University of Groningen;* [b] *University Medical Center Groningen*

- **Evaluating Cognitive Load of Text-To-Speech (TTS) synthesis**
  Avashna Govender, Simon King and Cassia Valentini-Botinhao
  The Centre for Speech Technology Research, The University of Edinburgh

- **Directional selectivity of auditory spatial attention in multi-talker environment.**
  Ryo Teraoka, Shuichi Sakamoto, Zhenglie Cui, Yôiti Suzuki and Satoshi Shioiri
  Research Institute of Electrical Communication, Tohoku University, Sendai

- **Ocular Correlates of Auditory Emotion Recognition in Hearing-Impaired Listeners**
  Julie Kirwan[a], Anita Wagner[a] and Deniz Baskent[b]
  [a] *University Medical Center Groningen;* [b] *University of Groningen*

Topic 19 - Posters: Psychoacoustics
Thursday, September 12 | Poster Forum: 15:40-16:20 | Foyer

- **Spatial sound segregation in monaural listening condition**
  Daisuke Morikawa, Daiki Kojima and Tatsuya Hirahara
  Toyama Prefectural University

- **Acuity of Spatial Stream Segregation along the Horizontal Azimuth with Non-individualized Head-Related Transfer Functions**
  Martha M Shiell and Elia Formisano
  Maastricht University
- **HRTF and panning evaluations for binaural audio guidance**
  Sylvain Ferrand[a], François Alouges[b] and Matthieu Aussal[b]
  [a] *Ecole Polytechnique, Palaiseau;* [b] *Centre de Mathématique Appliquées, École polytechnique*
- **Feature Analysis of Sound Direction Perception Using Frequency Band-Limited Stimuli: Extension of a Directional Band Model**
  Michika Yamada[a], Fumikazu Saze[a], Toshiharu Horiuchi[b] and Kan Okubo[a]
  [a] *Tokyo Metropolitan University;* [b] *KDDI Research, Inc.*
- **Parametric measurement of the effects of relative loudness on the relative weights**
  Alexander Fischenich[a], Jan Hots[b], Jesko Verhey[b] and Daniel Oberfeld-Twistel[a]
  [a] *Johannes Gutenberg-Universität Mainz;* [b] *University of Magdeburg*
- **Evaluation of Frequency Resolution Characteristic of Cartilage- conduction Hearing using Physiological and Psychological Measurement**
  Gaik Sean Yap[a], Sho Otsuka[a], Masato Yumoto[b] and Seiji Nakagawa[a]
  [a] *Chiba University;* [b] *Graduate School of Medicine, The University of Tokyo*
- **A preliminary study of desirable sound environments in hospital wards**
  Junko Matsumoto
  Nagano College of Nursing

Topic 21 - Posters: Soundscape and Urban Sound Planning
Thursday, September 12 | Poster Forum: 15:40-16:20 | Foyer

- **On the Dimension and Scaling Analysis of Soundscape Assessment Tools: a case study about the "Method A" of ISO/TS 12913-2:2018**
  M Lionello, Francesco Aletta and Jian Kang
  University College London
- **Sound and Weather - A Complex Relationship**
  Jan Lordieck and Bryce Timothy Lawrence
  TU Dortmund
- **The effect of spectral centroid on perceived birdsong in urban forests**
  Xinchen Hong[a], Chen Yan[a], Guangyu Wang[b] and Siren Lan[a]
  [a] *School of Landscape Architecture, Fujian Agriculture and Forestry University, Fuzhou;* [b] *University of British Columbia*
- **Soundscape engineering of a promenade on Namsan Mountain Park by noise, sound and preference maps**
  Jisu Yoo, Jae Kwan Lee and Seo Il Chang
  University of Seoul

- **Using 3D City model platform for the analysis of Andorra's Soundscape**
  Rosa Ma Alsina-Pagès[a], Marc Vilella[b], Marc Pons[c] and Robert Garcia Almazan[a]
  [a] *GTM - La Salle (URL);* [b] *Observatori de la Sostenibilitat d'Andorra (OBSA);* [c] *Observ. de la Sostenibilitat d'Andorra (OBSA), Andorra Innovation Hub, Actu*

- **Noise and Soundscape Mapping in a Taebaeksan Mountain National Park of South Korea**
  Kyong Seok Ki[a], Jisu Yoo[b], Hunjae Ryu[c] and Seo Il Chang[b]
  [a] *Sangji University, Wonju;* [b] *University of Seoul;* [c] *Korea Educational Environments Protection Agency*

- **Evaluating Sound Environment in Shenzhen by Using Artificial Neural Networks**
  Chen Xing[a], Zhixiang Tao[b], Yu Lei[a] and Jian Kang[c]
  [a] *HIT Shenzhen Graduate School;* [b] *Harbin Institute of Technology Shenzhen;* [c] *University College London*

- **Investigation on the impact of traffic noise on the acoustic environment of urban parks in high-density cities: Taking Shenyang City, China as an example**
  Yuan Zhang, Xinhao Yang and Siyang Guo
  Shenyang Jianzhu University, China

- **Spatial Analysis of the Impact of Urban Forms to Road-traffic Noise in a Highly Populated City**
  Taeho Park[a], Minho Kim[b], Phillip Kim[a] and Seo Il Chang[a]
  [a] *University of Seoul;* [b] *Sangmyung University*

- **The Importance of An Urban Interpretation of Environmental Noise. The case of Mexico City**
  Fausto E Rodriguez Manzo[a], Elisa Garay-Vargas[b], Laura Lancon-Rivera[b], Dulce Ponce-Patron[b] and Silvia Garcia-Martinez[b]
  [a] *Universidad Autónoma Metropolitana, Mexico;* [b] *Universidad Autónoma Metropolitana-AZC, Mexico*

- **Artificial neural network analysis of the relationship between road-traffic noise and air pollutants and urban form indicators**
  Phillip Kim[a], Hunjae Ryu[b], Jong June Jeon[a], Seo Il Chang[a] and Nokil Park[c]
  [a] *University of Seoul;* [b] *Korea Educational Environments Protection Agency;* [c] *Atlanta Regional Commission*

- **Sustainable Resources to Improve on Living Green Walls Acoustics: Supply Chain Study**
  Ghofran Salah and Anna Romanova
  University of Greenwich

- **Perception of auditory-visual simultaneity changes by ambient illumination**
  Masaaki Tezuka, Mariko Tsuruta-Hamamura and Hiroshi Hasegawa
  Utsunomiya University

- **Digitization of cultural heritage of the UNESCO site - Lipnica Murowana**
  Pawel Malecki[a], Jerzy Wiciak[a], Katarzyna Sochaczewska[a] and Natalia Krygowska[b]
  [a] *AGH University of Science and Technology, Krakow;* [b] *Jagiellonian University, Poland*

- **Acoustic quality and health in urban environments - First methodological experiences of the pilot study SALVE**
  Robynne Sutcliffe[a], Bryce Timothy Lawrence[b], Salman Ahmed[a], Timo Haselhoff[a], Dietwald Gruehn[b] and Susanne Moebus[a]
  [a] *Center for Urban Epidemiology (UK);* [b] *TU Dortmund*

- **Comparison of Direction of Arrival Methods for Separation of Vehicle Sound Sources**
  Gabriela Dantas Rocha, Felipe Petraglia, Julio Cesar Boscher Torres and Mariane Rembold Petraglia
  Electrical Eng. Program - Federal University of Rio de Janeiro

Topic 22 - Posters: Sound quality of fans and HVAC-systems
Thursday, September 12 | Poster Forum: 15:40-16:20 | Foyer

- **Relationship between Subjective Responses and Physical Parameters of Air-Conditioner Noises in a Car**
  Yoshiharu Soeta[a], Hiroko Kagawa[a] and Yoshisada Sakamoto[b]
  [a] *AIST, Osaka;* [b] *Suzuki Motor Corporation*

- **Psychoacoustical assessment of thermal impression of automotive HVAC noise**
  Seiji Nakagawa[a], Takuya Hotehama[b] and Masaru Kamiya[c]
  [a] *Chiba University;* [b] *National Institute of Advanced Industrial Science and Technology (AIST);* [c] *DENSO Corporation*

Topic 23 - Posters: Speech
Thursday, September 12 | Poster Forum: 15:40-16:20 | Foyer

- **Active control and passive consequence of vowel devoicing in Japanese: Evidence of highspeed movies and PGG**
  Masako Fujimoto[a], Seiya Funatsu[b] and Ichiro Fujimoto[c]
  [a] *Waseda University, Tokyo;* [b] *Prefectural Univ. of Hiroshima;* [c] *Takushoku University*

- **Investigation of Acoustic Models for Emotion Recognition using a Spontaneous Speech Corpus**
  Tetsuo Kosaka, Yuka Haneda, Daisuke Makabe and Masaharu Kato
  Yamagata University

- **Opening the Black Box: Real-Time Speech Perturbation Experiments Reloaded**
  Bahne Hendrik Bahners[a], Sebastian Heidelberg[b], Joseph Baader[b], Ruben van de Vijver[a], Markus Butz[a] and Julian Rohrhuber[b]
  [a] *Heinrich-Heine Univ., Düsseldorf;* [b] *Robert Schumann Hochschule, Düsseldorf*

- **Detection of Anchors' Utterances in Broadcast News Using I-vector-based Speaker Similarity and Temporal Information**
  Daichi Nozaki, Masaru Yamashita, Hiroyuki Takada and Matsunaga Shoichi
  Nagasaki University

- **Using partial a priori knowledge of Relative Transfer Functions to design an MVDR beamformer for a Binaural Hearing Assistive Device with External Microphones**
  Randall Ali, Toon van Waterschoot and Marc Moonen
  KU Leuven

- **Discrimination of Mono-syllables in Sentence Context: the Case of Japanese Listeners' Perception of /ba/-/da/ Continuum**
  Kanako Tomaru
  Sophia University, Tokyo

- **Speech Enhancement by Bit-Rate Extension Based on Time-Frequency Simultaneous-Constrained Griffin-Lim Algorithm**
  Haonan Wang and Takanobu Nishiura
  Ritsumeikan University, Kusatsu

- **Comparative Acoustic - Phonetic Analysis of Retroflex Consonants of Some Indian Languages**
  Shyam Sunder Agrawal[a], Shweta Bansal[b] and Shweta Sinha[c]
  [a] *KIIT Gurgaon;* [b] *KIIT College of Engineering;* [c] *ASET, Amity University, Gurgaon*

- **Acoustic Evaluation of Simplifying Hypotheses Used in Articulatory Synthesis**
  Ioannis Douros[a], Yves Laprie[b], Pierre-André Vuissoz[c] and Benjamin Elie[d]
  [a] *LORIA Univ. Lorraine and IADI Laboratory;* [b] *LORIA CNRS;* [c] *IADI (Imagerie Adaptative Diagnostique et Interventionnelle);* [d] *Institute of Mechanical Sciences and Industrial Applications (IMSIA)*

- **Inverse Estimation of the Vocal Tract Shape from Speech Sounds Including Consonants Using a Vocal Tract Mapping Interface**
  Kohichi Ogata and Takayuki Tanaka
  Kumamoto University

- **Acoustic and Subjective Evaluation of Brazilian Portuguese Speech Recordings Made in Critical Listening Environments**
  Ticiana Matar de Lello[a], Stephan Paul[b] and Luiz Wagner Pereira Biscainho[c]
  [a] *PEE/COPPE - Federal University of Rio de Janeiro;* [b] *Federal University of Santa Catarina;* [c] *DEL/POLI & PEE/COPPE - Federal University of Rio de Janeiro*

- **A Simple Strategy for Natural Mandarin Spoken Word Stretching via the Vocoder**
  Yi-Jhe Lee, Ting-Chun Liao and Yi-Wen Liu
  National Tsing Hua University, Taiwan

- **A Study on English Speech Acclimatization Based on Accent Conversion for Non-native Speaker**
  Yutao Zhang[a], Takuro Sasaki[a], Yukoh Wakabayashi[b], Takahiro Fukumori[a] and Takanobu Nishiura[a]
  [a] *Ritsumeikan University;* [b] *Tokyo Metropolitan University*

20 G - Acoustical needs for comfortable and inclusive learning spaces
Thursday, September 12 | Europa
Chairs: A. Astolfi, N. Prodi, D.S. Woolworth

8:40 **Qualitative Evaluation of a Classroom Redesign**
Ana M Jaramillo[a], Bruce C Olson[a], Peggy Nelson[b], Sarah Bochat[b] and Michael Doing[b]
[a] *Olson Sound Design;* [b] *University of Minnesota*

9:00 **Signal-to-noise ratio in university lecture halls with low intelligibility**
Dario D'Orazio, Domenico De Salvio, Laura Anderlucci and Massimo Garai
University of Bologna

9:20 **Unexpectedly high noise reduction obtained in occupied classrooms with highly sound absorbing ceilings and walls**
David Lubman[a] and David Sage Woolworth[b]
[a] *DL Acoustics, Westminster (USA);* [b] *Roland, Woolworth & Associates*

9:40 **Adaptation to Room Acoustics and Its Effect on Speech Understanding**
Pavel Zahorik
University of Louisville

10:20 **Acoustic treatment of school spaces and its impact on students and teachers. Users' self-assessment.**
Mikolaj Jarosz[a] and Irena Polewczyk[b]
[a] *Ecophon;* [b] *Uniwersytet Slaski, Wydzial Pedagogiki i Psychologii*

10:40 **Association between measurement and modeling results of room acoustics in open-plan learning spaces**
Joose Takala[a], Jesse Lietzén[b], Saveli Valjakka[a], Henry Niemi[a] and Mikko Kylliäinen[b]
[a] *AINS Group;* [b] *Tampere University of Technology*

11:00 **Well-being and noise annoyance outcomes from first graders and relationships with classroom acoustics**
Arianna Astolfi[a], Giuseppina Emma Puglisi[a], Andrea Prato[b], Silvia Murgia[a], Greta Minelli[a] and Tiziana Sacco[c]
[a] *Politecnico di Torino - Department of Energy;* [b] *INRiM - National Institute of Metrological Research, Torino;* [c] *Università di Torino, Department of Neuroscience*

11:20 The sound environment of German preschools and preschool teachers' thoughts about sound generated by children
Saki Noguchi[a], Hisako Yoshizawa[b], Masayuki Sato[c] and Tadashi Konishi[d]
[a] *Meiji University;* [b] *Heinrich Heine University Duesseldorf;* [c] *Waseda University;* [d] *Tokyo City University*

14:00 Children's perception of degraded speech at normal vs. fast speech rate
Isabel S. Schiller[a], Dominique Morsomme[a], Malte Kob[b] and Angélique Remacle[a]
[a] *Faculty of Psychology, Logopedics, and Educational Sciences, University of Liège;* [b] *Erich Thienhaus Institute, Detmold University of Music*

14:20 Speech Intelligibility in Classrooms: What if the Teacher is Dysphonic?
Pasquale Bottalico and Keiko Ishikawa
University of Illinois

14:40 Studying for an exam in an open-plan study environment: Does background noise impair performance?
Ella Braat-Eggen[a], Jikke Reinten[b], Maarten Hornikx[c] and Armin Kohlrausch[c]
[a] *Avans University of Applied Sciences, 's Hertogenbosch;* [b] *University of Applied Sciences Utrecht;* [c] *Eindhoven University of Technology*

15:00 Exploring the effect of ventilation type on the acoustics of primary and secondary school classrooms
Kieren Smith and Lily M. Wang
University of Nebraska-Lincoln

15:20 Speech comprehension and intelligibility in noise in 11 to 13 years old children: what is the relationship?
Nicola Prodi[a], Chiara Visentin[a], Erika Borella[b], Irene Mammarella[c] and Alberto Di Domenico[d]
[a] *Department of Engineering, University of Ferrara;* [b] *Department of General Psychology, University of Padova;* [c] *Department of Developmental and Social Psychology, University of Padova;* [d] *Department of Psychological, Health and Territorial Sciences, Univ. of Chieti*

16:20 Optimising the Acoustic Design for Multi-purpose Rooms used for a Variety of Speech Communication Activities
Colin Campbell[a], Helene Sallenhag[a], Erling Nilsson[b] and Emma Arvidsson[a]
[a] *Saint-Gobain Ecophon AB;* [b] *Saint-Gobain Ecophon*

16:40 Background Noise and Phonological Processing in Second Language Learners
Emil Holmer, Thaisy Costa and Mary Rudner
Linköping University

17:00 Towards Accessible Acoustic Criteria for Inclusion in Mainstream Classrooms
Emma Greenland[a] and Bridget Shield[b]
[a] *Anderson Acoustics, Brighton;* [b] *London South Bank University*

17:20 Room acoustic conditions of schools, a church, and a residential premise for hearing impaired people
Cheol-Ho Jeong[a], Wan-Ho Cho[b], Ji-Ho Chang[b], Seong-Hyun Lee[c], Chang Wook Kang[d] and Jin Gyun Park[e]
[a] *Technical University of Denmark (DTU);* [b] *KRISS;* [c] *Korea Inst. of Machinery and Materials;* [d] *Dept, of Secondary Special Education, Kangnam University;* [e] *Oticon Korea*

17:40 The need for comfortable and inclusive acoustical learning spaces for children with autism spectrum disorder
Hidetoshi Takahashi[a] and Kanako Ueno[b]
[a] *Kochi University, Japan;* [b] *Meiji University*

16 W - General Musical acoustics
Thursday, September 12 | Brüssel
Chairs: J. Kergomard, D. Sharp

8:40 Spectral and Mathematical Music Theory Analyses of the Ikoro Drum Using Visualizations and Sonifications of Beat-Class Theory.
Stephen G. Onwubiko[a], Neilsen Tracianne[b] and Andrea M. Calilhanna[c]
[a] *University of Nigeria;* [b] *Brigham Young University, Provo Utah;* [c] *University of Sydney, Australia*

9:00 Ikorodo Music Analyzed Through Visualizations and Sonifications of Beat-Class Theory
Andrea M. Calilhanna[a], Stephen G. Onwubiko[b] and Tobi Kemewerigha[c]
[a] *University of Sydney, Australia;* [b] *University of Nigeria;* [c] *University of Calabar*

9:20 Procedure for arranging backing score for ensemble music by evaluating ease of playing on instrumentalists
Nozomiko Yasui[a] and Masanobu Miura[b]
[a] *Saitama University;* [b] *Hachinohe Institute of Technology*

9:40 Anti-phase synchronization between the oscillation in the pipe and that in the foot of a flue organ pipe
Kin'Ya Takahashi[a], Sho Iwagami[a], Shuhei Tateishi[a], Genki Tsutsumi[a], Taizo Kobayashi[b] and Toshiya Takami[c]
[a] *Kyushu Institute of Technology;* [b] *Kyushu University;* [c] *Oita University*

10:00 Reproducibility of Mode Transition of Edge Tone with DNS and LES
Sho Iwagami[a], Taizo Kobayashi[b], Kin'Ya Takahashi[a] and Yuji Hattori[c]
[a] *Kyushu Institute of Technology;* [b] *Kyushu University;* [c] *Tohoku University*

10:20 Pitch Accuracy in Relationship to External and Internal Auditory Feedback
Pasquale Bottalico[a] and Eric J Hunter[b]
[a] *University of Illinois;* [b] *Michigan State University*

04 L - Evaluation of floor impact sound insulation
Thursday, September 12 | Brüssel
Chairs: J.Y. Jeon, C. Hopkins

11:00 **Development of a modified impact testing method for simultaneously evaluating multiple floor toppings**
Wayland Dong and John Loverde
Veneklasen Associates

11:20 **Round robin for testing tapping machines**
Sylvia Stange-Kölling and Volker Wittstock
Physikalisch-Technische Bundesanstalt

14:00 **New single-number quantities for evaluation of impact sound insulation**
Mikko Kylliäinen[a], Petra Karoliina Virjonen[b] and Valtteri Hongisto[b]
[a] *Tampere University of Technology;* [b] *Turku University of Applied Sciences*

14:20 **Efficient numerical prediction and experimental validation of impact sound radiation by timber joist floors**
Pengchao Wang[a], Cédric van Hoorickx[b], Geert Lombaert[c] and Edwin Reynders[a]
[a] *Structural Mechanics Section, Department of Civil Engineering, KU Leuven;* [b] *KU Leuven;* [c] *KU Leuven, Department of Civil Engineering*

14:40 **The preliminary study on subjective rating of different floors characterised by Ln,w+CI,50-2500**
Vojtech Chmelík[a], Jakub Benklewski[b], Monika Rychtarikova[c], Dominik Kisić[d], Kristian Jambrošić[d], Marko Horvat[d] and Herbert Muellner[b]
[a] *STU Bratislava;* [b] *Fachbereich Akustik & Bauphysik,TGM - Die Schule der Technik;* [c] *KU Leuven, Faculty of Architecture;* [d] *Faculty of Electrical Engineering and Computing, University of Zagreb*

15:00 **Perception of Combined Indoor Noise Sources in Lightweight Buildings**
Alessia Frescura and Pyoung Jik Lee
Acoustics Research Unit, School of Architecture, University of Liverpool

15:20 **Influence of suspended ceiling type of residential building on heavyweight floor impact sound**
Song Hansol[a], Jongkwan Ryu[a], Inho Kim[b] and Yong Hee Kim[c]
[a] *Chonnam National University (Korea);* [b] *POSCO E&C;* [c] *Korea Conformity Laboratories*

04 B - Sound insulation in wooden construction
Thursday, September 12 | Brüssel
Chairs: M. Schneider, F. Morandi, B. Zeitler

16:20 **Floor Impact Sound Insulation of the Six-story Wood-frame Model Building**
Atsuo Hiramitsu[a], Ryuta Tomita[b], Hirakawa Susumu[c] and Masayoshi Sato[d]
[a] *NILIM, Ibaraki, Japan;* [b] *Nihon University;* [c] *Building Research Institute, Japan;* [d] *Japan 2x4 Home Builders Association*

16:40 **Hybrid joist floor constructions. Evaluation of measurement results.**
Anders Homb
SINTEF Building & Infrastructure, Trondheim

17:00 **Application of elastic interlayers at junctions in massive timber buildings**
Stefan Schoenwald[a], Niko Kumer[b], Sebastian Wiederin[c], Norbert Bleicher[d] and Bernhard Furrer[e]
[a] *Empa Materials and Technology;* [b] *Stora Enso Timber Bad St. Leonhard GmbH;* [c] *Getzner Werkstoffe GmbH;* [d] *best wood SCHNEIDER GmbH;* [e] *Lignum Holzwirtschaft Schweiz*

17:20 **Numerical simulation of CLT floors and comparison with empirical predictive models**
Marco Caniato[a], Federica Bettarello[b] and Andrea Gasparella[a]
[a] *University of Bozen - Bolzano;* [b] *University of Trieste*

17:40 **Development of a quick and non-invasive measurement method for the extraction of the dispersion relation in CLT plates for the evaluation of the elastic parameters**
Arved Thies[a], Federica Morandi[b], Luca Barbaresi[b], Massimo Garai[b], Jörn Hübelt[a] and Niko Kumer[c]
[a] *Hochschule Mittweida University of Applied Sciences;* [b] *University of Bologna;* [c] *Stora Enso Timber Bad St. Leonhard GmbH*

04 C - Acoustic regulations and quality classes for buildings 1
Thursday, September 12 | Berlin 1
Chairs: B. Rasmussen, J. Jeongho

8:40 **Survey method for rubber ball impact sound**
Jeong Jeongho
Fire Insurers Laboratories of Korea

9:00 **Rain Noise**
Brian Donohue and John Pearse
University of Canterbury, NZ

9:20 **Ratings and classifications for high-frequency impact noise isolation**
Wayland Dong[a], John Loverde[a] and Jochen Scheck[b]
[a] *Veneklasen Associates;* [b] *Hochschule für Technik Stuttgart*

9:40 **Airborne sound insulation in dwellings - single numbers weighted from 50-3150 Hz correlated to Swedish questionaire surveys**
Christian Simmons[a] and Fredrik Ljunggren[b]
[a] *Simmons akustik & utveckling AB;* [b] *Luleå University of Technology*

10:20 **Is noise annoyance from neighbours in multi-storey housing associated with fatigue and sleeping problems?**
Birgit Rasmussen[a] and Ola Ekholm[b]
[a] *SBi, Aalborg University (AAU-CPH);* [b] *National Institute of Public Health, University of Southern Denmark*

10:40 **Perceived noises in your residence: which one annoys the most?**
Talita Pozzer, Rodrigo Silva Motta, Elaine Lemos, Débora Leite and Iara Cunha
Harmonia Acústica, Sao Paulo

11:00 **Subjective Evaluation of Acoustic Quality Classes in Dwelling**
Seda Kulak and Nurgun Bayazit
Istanbul Technical University

11:20 **Comparison of Acoustical Performance and Subjective Evaluation in Residential Buildings**
Ayca Sentop[a] and Nurgun Bayazit[b]
[a] *Istanbul Bilgi University;* [b] *Istanbul Technical University*

14:00 **Sound insulation between dwellings - Comparison of national requirements in Europe and interaction with acoustic classification schemes**
Birgit Rasmussen
SBi, Aalborg University (AAU-CPH)

14:20 **Acoustic regulation in hospitals - Interior acoustics improving the recovery of patients**
Georg Schöner
Rockfon, Hedehusene, Denmark

27 C - Sound field rendering in Virtual Realilty

Thursday, September 12 | Berlin 2
Chairs: L. Savioja, D. Murphy, F. Wefers, T. Kuhlen

8:40 **Reconstruction of binaural room impulse responses using spherical harmonics**
Maarten Hornikx
Eindhoven University of Technology

9:00 **Local Directional Source Modeling in Wave-based Acoustic Simulation**
Stefan Bilbao[a], Jens Ahrens[b] and Brian Hamilton[a]
[a] *Acoustics and Audio Group, University of Edinburgh;* [b] *Chalmers University of Technology, Gothenburg*

9:20 **Room acoustics modeling using a hybrid method with fast auralization with artificial neural network techniques**
Roberto A. Tenenbaum[a], Filipe O. Taminato[b] and Viviane S.G. Melo[c]
[a] *Santa Maria, Brazil;* [b] *State University of Rio de Janeiro;* [c] *Federal University of Santa Maria*

9:40 **Sound field reproduction with exterior field cancellation using variable-directivity loudspeakers**
Bokai Du[a], Michael Kohnen[b], Michael Vorländer[b] and Xiangyang Zeng[a]
[a] *Northwestern Polytechnical University, Xi'an;* [b] *Institute of Technical Acoustics, RWTH Aachen University*

10:00 **Auralization of interactive virtual scenes containing numerous sound sources**
Lukas Aspöck, Lucas Mösch, Jonas Stienen and Michael Vorländer
Institute of Technical Acoustics, RWTH Aachen University

10:20 **Rendering of scattering effects from finite objects using neural network-controlled parametric digital filters**
Ville Pulkki[a] and U. Peter Svensson[b]
[a] *Aalto University;* [b] *NTNU, Dept. of Electronics and Telecommunication, Trondheim*

10:40 **A real-time virtual reality building acoustic auralization framework for psychoacoustic experiments with contextual and interactive features**
Anne Heimes, Imran Muhammad and Michael Vorländer
Institute of Technical Acoustics, RWTH Aachen University

11:00 **Rendering Environmental Noise Planning Models in Virtual Reality**
Arne Nykänen[a], Roger Johnsson[b] and Jonas Aråker[b]
[a] *Luleå University of Technology;* [b] *Tyrens, Lulea*

11:20 **Simplification of Reflection Orders in Virtual Soundscapes through a Subjective Evaluation**
Chunyang Xu and Jian Kang
University College London

12 A - Spatial audio: Reproduction techniques and signal processing 1
Thursday, September 12 | Berlin 2
Chairs: B. Xie, P. Majdak

14:00 **Investigating Uncertainties in Fast HRTF Measurements**
Shaima'a Doma, Hark Braren and Janina Fels
Teaching and Research Area of Medical Acoustics, Institute of Technical Acoustics, RWTH Aachen University

14:20 **Independent modes and dimensionality reduction of head- related transfer functions based on tensor decomposition**
Tong Zhao and Bosun Xie
South China University of Technology, Guangzhou

14:40 Objective Differences between Individual HRTF Datasets of Children and Adults
Hark Braren and Janina Fels
Teaching and Research Area of Medical Acoustics, Institute of Technical Acoustics, RWTH Aachen University

15:00 Rendering virtual source at various distances using binaural Ambisonics scheme in dynamic virtual auditory display
Bosun Xie and Jianliang Jiang
South China University of Technology, Guangzhou

15:20 Local Ambisonics panning method for creating virtual source in the median plane
Kailing Yi and Bosun Xie
South China University of Technology, Guangzhou

16:20 The limitation of static transaural reproduction with two frontal loudspeakers
Lulu Liu and Bosun Xie
South China University of Technology, Guangzhou

16:40 Effect of individualized near-field head-related transfer functions on distance perception in dynamic virtual auditory display
Guangzheng Yu[a], Liliang Wang[b], Liang Linda[b], Bosun Xie[b], Jianliang Jiang[b] and Chengyun Zhang[b]
[a] *Acoustics Lab, School of Physics, South China University of Technology;* [b] *South China University of Technology, Guangzhou*

17:00 3-D Sound Image Localization in Reproduction of 22.2 Multichannel Audio Based on Room Impulse Response Generation with Vector Composition
Kaige Zheng, Misaki Otsuka and Takanobu Nishiura
Ritsumeikan University

17:20 Evaluation of Moving Sound Image Localization for Reproduction of 22.2 Multichannel Audio Using Up-mix Algorithm
Hiromu Suzuki and Takanobu Nishiura
Ritsumeikan University

17:40 Comparison of reproduction error metrics in loudspeaker-based playback systems
Florian Pausch[a,b], Michael Kohnen[b] and Janina Fels[a,b]
[a] *Teaching and Research Area of Medical Acoustics, Institute of Technical Acoustics, RWTH Aachen University;* [b] *Institute of Technical Acoustics, RWTH Aachen University*

18:00 Digital Cinema: Analysis of Multi-Channel Systems to Control Sound Levels
Peter Houtave
A-Tech / Acoustic Technologies, Brussels

18 M - Statistics in auditory scenes
Thursday, September 12 | Berlin 3
Chairs: M. Chait, Y. Boubenec

8:40 **Neural Mechanisms of Temporal Processing in the Central Auditory System: A Theory of Gap Detection**
Jennifer F. Linden
University College London

9:00 **Functional segregation of Ferret Auditory Cortex probed with natural and model-matched sounds**
Agnès Landemard[a], Célian Bimbard[a], Shihab Shamma[a], Sam Norman-Haignere[b] and Yves Boubenec[a]
[a] *École Normale Supérieure, Paris;* [b] *Columbia University*

9:20 **Theoretical Underpinnings of Statistical Processing of Complex Sounds**
Benjamin Skerritt-Davis and Mounya Elhilali
Johns Hopkins University

9:40 **Temporal Integration Windows for Auditory Statistical Estimation**
Richard McWalter and Josh H. McDermott
MIT, Cambridge (USA)

10:20 **Foreground-background decomposition in complex auditory scenes**
Sabine Thomassen and Alexandra Bendixen
Cognitive Systems Lab, TU Chemnitz

10:40 **Emergence of deviance detection along the auditory neuroaxis and beyond: A neuronal correlate for predictive coding?**
Manuel S. Malmierca
Institute of Neuroscience, Salamanca

11:00 **Short-term Statistics and Lexical Experience Drive Predictions and Prediction Errors Along the Auditory Pathway**
Carles Escera and Jordi Costa-Faidella
University of Barcelona

11:20 **The influence of nested patterns on sensitivity to pattern violations.**
Juanita Todd
University of Newcastle, Australia

14:00 **How the brain tracks the unfolding statistics of rapid sound sequences - evidence from brain imaging and pupillometry**
Maria Chait
University College London

14:20 **Assessing the level of consciousness for individual patients using complex, statistical stimuli**
Urszula Gorska and Bernhard Englitz
Donders Institute, Radboud University, Nijmegen

18 B - Objective measures of auditory function
Thursday, September 12 | Berlin 3
Chairs: B. Epp, S. Verhulst

14:40 **Selective attention in the brainstem and speech-in-noise comprehension**
Marina Saiz Alia[a], Antonio Elia Forte[b] and Tobias Reichenbach[a]
[a] *Imperial College London;* [b] *Harvard University*

15:00 **Intelligibility of Filtered Speech and its Relation to Electrophysiological Markers of Supra-threshold Hearing Deficits**
Markus Garrett[a], Viacheslav Vasilkov[b] and Sarah Verhulst[b]
[a] *University of Oldenburg;* [b] *Ghent University*

15:20 **The ORN component as an objective measure of concurrent sound segregation**
Alexandra Bendixen
Cognitive Systems Lab, TU Chemnitz

16:20 **Sensory resolution drives auditory responses in lateral frontal cortex**
Antje Ihlefeld and Min Zhang
New Jersey Institute of Technology

16:40 **Investigating the Cortical Representation of Speech Melody using Near-infrared Spectroscopy**
Kurt Steinmetzger[a], Martin Andermann[a], Esther Megbel[a], Zhengzheng Shen[b], Mark Praetorius[b] and Andre Rupp[a]
[a] *Department of Neurology, Heidelberg University Hospital;* [b] *ENT Clinic, Heidelberg University Hospital*

17:00 **Cortical Tonotopic Maps in Tinnitus and Hearing Loss**
Elouise Koops
University Medical Center Groningen

17:20 **Untangling the Components of Distortion Product Otoacoustic Emissions - Speed, Accuracy and Objective Assessment of Auditory Function**
Anthony W. Gummer, Ernst Dalhoff and Dennis Zelle
University Tübingen, Otolaryngology

17:40 **Audiovisual speech processing and listening effort in untreated age-related hearing loss: evidence from functional magnetic resonance imaging**
Christiane Thiel and Stephanie Rosemann
University of Oldenburg

18:00 **Acoustic input impedance of infants with normal and pathological middle ear**
Tobias Sankowsky-Rothe[a], Andreas Becker[b], Karsten Plotz[a], Rüdiger Schönfeld[b], Andreas Radeloff[b], Steven van de Par[c] and Matthias Blau[a]
[a] *Institut für Hörtechnik und Audiologie, Jade Hochschule, Oldenburg;* [b] *University Clinic for Otolaryngology, European Medical School, Oldenburg;* [c] *University of Oldenburg*

02 W - General Audio signal processing (measurement, sensors, arrays)
Thursday, September 12 | Lissabon 1
Chairs: B. Rafaely, G. Elko, J. Meyer

8:40 **The uncertainty of room impulse response measurements**
Ingo Witew and Michael Vorländer
RWTH Aachen University, Institute of Technical Acoustics

9:00 **Measurement of the four pole matrix of a sample in a transmission tube**
Rene Boonen
Nabla Technische Beratung, Grosskampenberg

9:20 **Ultrasonic Remote Sensing for Precision Agriculture**
Stuart Bradley[a] and Mathew Legg[b]
[a] *The University of Auckland;* [b] *Massey University*

9:40 **PyTTa: Open Source Toolbox for Acoustic Measurements and Signal Processing**
William D'Andrea Fonseca[a], João Vitor Paes[a], Matheus Lazarin[a], Marcos Vinicius Reis[a], Paulo Mareze[b] and Eric Brandão[b]
[a] *Universidade Federal de Santa Maria (UFSM), Acoustical Engineering;* [b] *UFSM*

10:00 **A Theory for Stethoscope Acoustics**
Maximilian Nussbaumer, Leyre Troyas Martinez and Anurag Agarwal
University of Cambridge (UK)

10:20 **Noise Intensity Prediction from Video Frames using Deep Convolutional Neural Networks**
Leonardo Oliveira Mazza[a], José Gabriel Rodríguez Carneiro Gomes[a] and Julio Cesar Boscher Torres[b]
[a] *Universidade Federal do Rio de Janeiro;* [b] *Electrical Eng. Program - Federal University of Rio de Janeiro*

02 A - Microphone array methods in room acoustics
Thursday, September 12 | Lissabon 1
Chairs: E. Fernandez-Grande, N. Xiang

10:40 **Acquisition of Bi-Directional Reflectance Functions by Nearfield Acoustical Holography - a preliminary study**
Jonathan Hargreaves
University of Salford

11:00 **Improving in-situ sound absorption measurements using sparse multichannel blind deconvolution**
Bruno Masiero, Stelamaris Bertoli and Alvaro Pais
University of Campinas

11:20 An application of multi-scale directional dictionaries to RIR interpolation
Elias Zea
KTH Royal Institute of Technology, Stockholm

14:00 Higher-order processing of spatial impulse responses
Leo McCormack[a], Archontis Politis[a], Oliver Scheuregger[b] and Ville Pulkki[a]
[a] *Aalto University;* [b] *Technical University of Denmark*

14:20 Deep Learning Applied to Dereverberation and Sound Event Classification in Reverberant Environments
Mingsian R. Bai and Wen-Chuan Chen
National Tsing Hua University, Taiwan

14:40 Binaural Dereverberation Based on Delayed Widely Linear Prediction in the Time Domain
Xin Leng[a], Jingdong Chen[a] and Jacob Benesty[b]
[a] *Northwestern Polytechnical University, Xi'an;* [b] *INRS-EMT, University of Quebec*

15:00 Dereverberation Based on Deep Neural Networks with Directional Feature from Spherical Microphone Array Recordings
Jeongmin Liu, Byeongho Jo and Jung-Woo Choi
KAIST, Deajeon, Korea

15:20 Acousto-optic sensing - spatial reconstruction of the sound field enclosed in a room
Samuel Arturo Verburg and Efren Fernandez-Grande
Technical University of Denmark

16:20 A High Order Rigid Spherical Microphone Array Design Using MEMS Microphones
Marco Berzborn and Michael Vorländer
Institute of Technical Acoustics, RWTH Aachen University

16:40 Robust localization of early reflections in a room using semi real-valued EB-ESPRIT with three recurrence relations and Laplacian constraint
Byeongho Jo and Jung-Woo Choi
KAIST, Deajeon, Korea

17:00 Double Tetrahedral Intensity Probes for Reducing the Spatial Bias Error of Source Localization
In-Jee Jung and Jeong-Guon Ih
Acoustics Laboratory, Dept. of Mechanical Engineering, KAIST, Deajeon, Korea

17:20 Sound field reconstruction in a room from spatially distributed measurements
Efren Fernandez-Grande
Technical University of Denmark

20 P - Room acoustical simulation methods for high and low frequencies
Thursday, September 12 | Lissabon 2
Chairs: U. Stephenson, M. Ochmann

8:40 **Sensitivity analysis for hybrid room acoustic simulation regarding spatial data of receiver**
Philipp Schäfer and Michael Vorländer
RWTH Aachen University, Institute of Technical Acoustics

9:00 **Preliminary results of scattering surface modeling and perceptual aspects in wave-based acoustic simulations**
Louena Shtrepi[a], Brian Hamilton[b], Arianna Astolfi[c] and Marco Masoero[d]
[a] *Politecnico di Torino - DENERG;* [b] *Acoustics & Audio Group, University of Edinburgh;* [c] *Politecnico di Torino - Department of Energy;* [d] *Politecnico di Torino*

9:20 **Numerical simulations of Italian Opera Houses using geometrical and wave-based acoustics methods**
Dario D'Orazio[a], Giulia Fratoni[b], Anna Rovigatti[c] and Brian Hamilton[d]
[a] *University of Bologna;* [b] *University of Bologna - Department of Industrial Engineering;* [c] *University of Bologna - Interdepartmental Centre for Industrial Research;* [d] *Acoustics & Audio Group, University of Edinburgh*

9:40 **Combining Image and Equivalent Sources for Room Acoustic Simulations**
Boris Mondet[a], U. Peter Svensson[b], Jonas Brunskog[c], Cheol-Ho Jeong[d], Claus Lynge Christensen[a] and Jens Holger Rindel[e]
[a] *Odeon A/S;* [b] *NTNU, Dept. of Electronics and Telecommunication;* [c] *Technical University of Denmark, Department of Electrical Engineering;* [d] *Technical University of Denmark (DTU);* [e] *Multiconsult, Oslo*

10:20 **Study of DIF Boundary Model with Rectilinear FDTD Scheme in Voice Booths**
Vito Romanelli Tricanico, Marcel Borin, Carolina Monteiro and Rânnely Araújo
Harmonia Acústica, Sao Paulo

10:40 **Validation of ray-tracing semiclassical (RTS) low frequency acoustic modelling for rooms with curved boundaries**
Rok Prislan[a] and Daniel Svenšek[b]
[a] *MK3 d.o.o., Ljubljana;* [b] *Department of Physics, Faculty of Mathematics and Physics, University of Ljubljana*

11:00 **Lower Bound on Frequency Validity of Energy-Stress Tensor Based Diffuse Sound Field Model**
Aidan Meacham[a], Roland Badeau[b] and Jean-Dominique Polack[a]
[a] *Sorbonne Université, UMR CNRS 7190, Institut Jean le Rond d'Alembert;* [b] *LTCI, Télécom ParisTech, Université Paris-Saclay*

11:20 **Single versus multi-domain analysis in diffusion equation modeling for sound field analysis of distinct room shapes**
Zuhre Su Gul[a], Erinc Odabas[b] and Mehmet Caliskan[b]
[a] *Bilkent University, Ankara;* [b] *Mezzo Studyo Ltd, Ankara*

14:00 **An Energy Model for Calculating Room Acoustic Parameters in Rooms with Absorbent Ceilings**
Erling Nilsson
Saint-Gobain Ecophon, Hyllinge

14:20 **Pertinence of a Simplified Plane Wave Model for Reverberation Energy Decays in Rooms with a Pair of Parallel Surfaces.**
Jean-Jacques Embrechts
University of Liège, Acoustics Laboratory

14:40 **Dispersion-Reduced Time Domain FEM for Room Acoustics Simulation**
Takeshi Okuzono[a], Kimihiro Sakagami[a] and Otsuru Toru[b]
[a] *Kobe University;* [b] *Oita University, Japan*

15:00 **Comparison of sound pressure levels and reverberation times computed by the boundary element method and the radiosity method**
Christian Steuck and Uwe Stephenson
HafenCity Universität, Hamburg

15:20 **Numerical Simulation Round Robin of a Coupled Volume Case as Compared to Scale Model Measurements**
Antoine Weber and Brian F. G. Katz
Sorbonne Université, CNRS, Institut d'Alembert, Paris

16:20 **Open-source platforms for fast room acoustic simulations in complex structures**
Matthieu Aussal[a] and Robin Gueguen[b]
[a] *Centre de Mathématique Appliquées, École polytechnique, Palaiseau;* [b] *Institut des Sciences du Calcul et des Données, Sorbonne Université, Paris*

16:40 **Estimation of the background noise levels in large atria with known room acoustic properties and function**
Richard Šimek[a], Vojtech Chmelík[a], Jarmila Húsenicová[a] and Monika Rychtarikova[b]
[a] *STU Bratislava;* [b] *KU Leuven, Faculty of Architecture*

17:00 **Boundary element methods for acoustic simulations in the time domain**
Heiko Gimperlein
Heriot-Watt University, Edinburgh

24 A - Shape and topology optimization of vibroacoustic structures
Thursday, September 12 | Amsterdam
Chairs: J. Jung, G.H. Yoon, J.S. Jensen

8:40 **Radiation optimization of piezoelectric plates**
Olivier Doaré, Emil Garnell and Corinne Rouby
IMSIA, ENSTA ParisTech

9:00 **Optimization of Realistic Loudspeaker Models With Respect to Basic Response Characteristics**
Daniel Gert Nielsen[a], Finn T. Agerkvist[a] and Jakob S. Jensen[b]
[a] *Technical University of Denmark, Department of Electrical Engineering;* [b] *Technical University of Denmark, Department of Mechanical Engineering*

9:20 **Design of damping layer by topology optimization and Non-Negative Intensity**
Wenchang Zhao[a], Haibo Chen[b] and Steffen Marburg[a]
[a] *Technische Universität München;* [b] *University of Science and Technology of China*

9:40 **Reducing Offshore Pile Driving Noise: Shape Optimization of the Impact Hammer**
Elin Klages, Jonas Von Pein, Stephan Lippert and Otto von Estorff
Hamburg University of Technology

10:00 **Structural topology optimization for repeated eigenvalues with the adjoint sensitivity analysis**
Gil Ho Yoon[a], David Ruiz[b], Alberto Donoso[b] and Jose Carlos Bellido[b]
[a] *Hanyang University;* [b] *Universidad de Castilla - La Mancha*

24 D - Inverse problems in vibration and acoustics
Thursday, September 12 | Amsterdam
Chairs: N. Totaro, J.-G. Ih

10:40 **Attempt to Classify the Microphone Array Deconvolution Methods in Aeroacoustics**
Christophe Picard[a] and Quentin Leclere[b]
[a] *MicrodB;* [b] *Laboratoire Vibrations Acoustique (LVA), University of Lyon, INSA-Lyon*

11:00 **Extensions of the orthogonal beamforming to identify multiple multipole sources**
Xingjian Pan[a] and Wei Kang Jiang[b]
[a] *Shanghai Jiao Tong University;* [b] *Institute of Vibration, Shock and Noise, Shanghai Jiao Tong University*

11:20 **Acoustic source detection inside a pipe using vibroacoustic beamforming: assessment of the array gain from virtual experiments**
Souha Kassab[a], Sanae Serbout[a], Frédéric Michel[b] and Laurent Maxit[c]
[a] *INSA Lyon - Univ Lyon;* [b] *CEA Cadarache;* [c] *Univ Lyon, INSA-Lyon, LVA EA677*

14:00 **Blind identification using inverse Patch Transfer Function (iPTF) method**
Emmanuel Manu Dabankah, Nicolas Totaro and Jerome Antoni
Laboratoire Vibrations Acoustique (LVA), University of Lyon, INSA-Lyon

14:20 **Bayesian Inference to Damping Identification of Fiber-Reinforced Composites from Experimental Modal Data**
Sourav Chandra, Kheirollah Sepahvand, Christian A. Geweth, Ferina Saati and Steffen Marburg
Technical University of Munich (TUM)

14:40 **Selective identification of structural force distribution**
Nicolas Totaro
INSA Lyon - LVA

15:00 **High Frequency Structure-borne Sound Simulations using a hybrid Dynamical Energy Analysis / Advanced Transfer Path Analysis Approach**
Gregor Tanner[a], Satoshi Morita[b], Timo Hartmann[c] and Martin Richter[a]
[a] *University of Nottingham;* [b] *Yanmar R&D Europe S.r.L;* [c] *University of Nottingham, School of Mathematical Sciences*

15:20 **Estimation method of input power from road to tire based on experimental SEA**
Hiroki Nakamura[a], Kaito Sawada[a], Atsushi Kitahara[b] and Toru Yamazaki[a]
[a] *Kanagawa University;* [b] *Bridgestone Corporation*

16:20 **Vibration modelling of an elastic body of arbitrary shape subjected to mixed excitation**
Goran Pavic
INSA Lyon

16:40 **Vibro-acoustic Rendering Methods to Radiate a Uniform Sound Field from a Panel Speaker**
Jung-Han Woo and Jeong-Guon Ih
Acoustics Laboratory, Dept. of Mechanical Engineering, KAIST, Daejeon (Korea)

17:00 **HiFi Panel Speaker by Controlling the Vibration Field Using Array Actuators**
Ki-Ho Lee and Jeong-Guon Ih
Acoustics Laboratory, Dept. of Mechanical Engineering, KAIST, Daejeon (Korea)

17:20 **Bending Waves focusing in Arbitrary Shaped Plate-like Structures: Application to Spatial Audio**
Nassim Benbara, Marc Rébillat and Nazih Mechbal
ENSAM ParisTech

21 A - Towards standardized soundscape methodologies
Thursday, September 12 | K3
Chairs: B. Schulte-Fortkamp, A. Fiebig

8:40 **Soundscape - from Noise reduction to Perception-based Decisions for Livable Environments**
Brigitte Schulte-Fortkamp
Technische Universität Berlin

9:00 **Soundscape standardization dares the impossible - Case studies valuing current soundscape standards**
André Fiebig
Technische Universität Berlin

9:20 **A pilot study on the analysis of soundwalk data**
Koji Nagahata, Tomoki Manabe and Shuto Okada
Fukushima University

9:40 **The Implementation of Acoustic Environment Simulator to Improve The Soundscape of Iconic Space**
Ranti Dwi Tassia, Anugrah Sabdono Sudarsono and Sugeng Joko Sarwono
Institut Teknologi Bandung

10:00 **Classifying urban public spaces according to their soundscape**
Kang Sun[a], Karlo Filipan[a], Francesco Aletta[b], Timothy van Renterghem[a], Toon de Pessemier[c], Wout Joseph[c], Dick Botteldooren[a] and Bert de Coensel[c]
[a] *Ghent University, Department of Information Technology, WAVES research group;* [b] *University College London;* [c] *Ghent University*

10:40 **A soundscape study in New York. Reflections on the application of standardized methods to study everyday quiet areas**
Antonella Radicchi
Technical University of Berlin

11:00 **Soundscape reproduction using headphones for web-based listening test**
Anugrah Sabdono Sudarsono and Sugeng Joko Sarwono
Institut Teknologi Bandung

11:20 **A review of regression analysis methods: Establishing the quantitative relationships between subjective soundscape assessment and multiple factors**
Ming Yang
HEAD acoustics GmbH

23 B - From audio and speech quality to Quality of Experience and Aesthetic Appeal
Thursday, September 12 | K3
Chairs: A. Raake, N. Zacharov

14:00 **Methodologies for Assessment of Speech and Audio for Optimized Quality of Experience**
Dan Darcy
Dolby Laboratories, San Francisco

14:20 **Evaluation of an immersive audio experience using questionnaire and interaction data**
Jon Francombe and Kristian Hentschel
BBC Research & Development, Salford

14:40 **A Methodology and a Tool for Interchangeable Reproduction of Sound Samples in Listening Tests Through Different Sound Reproduction Systems**
Dominik Kisić, Marko Horvat and Kristian Jambrošić
Faculty of Electrical Engineering and Computing, University of Zagreb

15:00 **Parallel task contexts in QoE testing. Can EEG help to understand the results?**
Jan Holub and David Panek
FEE CTU in Prague

15:20 **Pupil Dilation Reveals Changes in Listening Effort due to Energetic and Informational Masking**
James Woodcock, Bruno Fazenda, Trevor Cox and William Davies
University of Salford

16:00 **Prediction of speech and noise quality for super- wideband and fullband transmission**
Jan Reimes
HEAD acoustics GmbH

16:20 **A System for Instrumental Evaluation of Audio Quality**
Magnus Schäfer
HEAD acoustics GmbH

23 W - General Speech
Thursday, September 12 | K3
Chairs: S. Narayanan, H.-W. Gierlich

16:40 **RTF-Steered Binaural MVDR Beamforming Incorporating an External Microphone for Dynamic Acoustic Scenarios**
Nico Gößling and Simon Doclo
Dept. Medical Physics and Acoustics, University of Oldenburg

17:00 **Comparison of Ideal Mask-Based Speech Enhancement Algorithms for White Noise and Low Mixture Signal-to-Noise Ratios**
Simone Graetzer and Carl Hopkins
Acoustics Research Unit, University of Liverpool

17:20 **Reverberation-induced speech improves intelligibility in reverberation: Effects of taker gender and speaking rate**
Nao Hodoshima
Tokai University

17:40 **Madurese Speech Synthesis using HMM**
Roudhotul Rouf and Dhany Arifianto
Institut Teknologi Sepuluh Nopember, Surabaya, Indonesia

18:00 **HMM-Based Speech Synthesis System with Expressive Indonesian Speech Scorpus**
Elok Anggrayni and Dhany Arifianto
Institut Teknologi Sepuluh Nopember, Surabaya, Indonesia

10 C - Design and control of the sound environment in a vehicle cabin
Thursday, September 12 | K4
Chairs: T. Toi, W.-H. Cho, S.-H. Shin, I. Jung

8:40 **Evaluation of Independent Sound Zones in A Car**
Ji-Ho Chang and Wan-Ho Cho
KRISS, Daejeon (Korea)

9:00 **Sounds for Enhancing Energy Efficient Driving: A Simulator Pre-Study**
Arne Nykänen[a], Johan Fagerlönn[b], Stefan Lindberg[b], Roger Johnsson[c] and Sathish Kumar Ramanathan[d]
[a] *Luleå University of Technology;* [b] *RISE Interactive;* [c] *Tyrens;* [d] *Scania*

9:20 **Investigation of Effect on the Acoustic Transfer Function in a Vehicle Cabin According to Change of Configuration**
Wan-Ho Cho and Ji-Ho Chang
KRISS, Daejeon (Korea)

10:00 **Factors Analysis of Gear Sound by Using Numerical Simulation**
Chengfeng Pu, Takafumi Takeda, Toru Hama and Takeshi Toi
Chuo University, Tokyo

10:20 **Design of Optimal Car Interior Sound Improving Driving Feeling**
Su-Ho Cha, Sung-Hwan Shin and Jae-Ho Yang
Kookmin University, Seoul

13 A - Flow duct acoustics
Thursday, September 12 | K4
Chairs: W. de Roeck, W. Desmet

10:40 **Generalized Method of Describing Acoustic Duct-Like System as a Multiport**
Anna Snakowska and Jerzy Jurkiewicz
AGH University of Science and Technology, Krakow

11:00 **Characterization of the centrifugal fan noise generated in residential HVAC systems using in-duct measurements**
Sarah van Tricht, Pieterjan Broos, Hervé Denayer, Maarten Vanierschot and Wim de Roeck
KU Leuven

11:20 **Trained Algorithms for Mode Decomposition in Ducts**
Stefan Sack and Mats Åbom
KTH, Stockholm, Sweden

14:00 **Prediction of the nonlinear response of an acoustically forced flow with linearized Navier-Stokes equations**
Abel Faure, Claire Bourquard and Nicolas Noiray
ETH Zürich - MAVT Dpt - CAPS Lab

14:20 **Self-Excited Vibration of Valve Caused by Hydrodynamic Force**
Xiangdong Liang
CSDDI, Wuhan

14:40 **Computational Aeroacoustics for Low Mach Number Flow Using Lattice Boltzmann Method**
Song Wang and Gary Scavone
McGill University, Montreal

01 C - Metamaterials for active and passive acoustic control
Thursday, September 12 | K4
Chairs: H. Lissek, S.A. Cummer

16:20 **Active Poro-elastic Acoustic Meta Materials**
Christopher Fuller
Virginia Tech/NIA, Blacksburg (USA)

16:40 **Analysis and Optimisation of an Active Noise Control System as a Potential Acoustic Metamaterial Building Block**
Joe Tan, Jordan Cheer and Stephen Daley
Institute of Sound and Vibration Research, Southampton

17:00 **Design of Acoustic Partitions with Thin Plate-like Acoustic Metamaterials**
Felix Langfeldt and Wolfgang Gleine
Hamburg University of Applied Sciences

17:20 **Non-linear Metamaterial Structures: Array of Particle Dampers**
Sifa Gul Demiryurek, Anton Krynkin and Jem Rongong
The University of Sheffield

08 W - General Noise and vibration policy and assessment
Thursday, September 12 | K4
Chairs: S. Luzzi, M.A. Burgess

17:20 **Model for total noise assessment under consideration of source specific exposure-response ralationships**
Manfred Liepert[a], Johannes Lang[a], Ulrich Möhler[a] and Dirk Schreckenberg[b]
[a] *Möhler + Partner Ingenieure AG;* [b] *ZEUS GmbH*

17:40 **Infrasound and low-frequency noise immission. Structural Vibrations Induced by industrial noise. Improving the ISO 1996- 2:2017 in order to propose a plausible standardized procedure for using in Legal noise assessment**
Walter Alfredo Montano and Elena Gushiken
ARQUICUST SRL, Lima, Peru

18:00 **A New Approach for Road Traffic Noise Mapping Using Big Data**
Gaetano Licitra[a], Antonino Moro[b], Luca Teti[c], Alessandro Del Pizzo[d] and Francesco Bianco[c]
[a] *ARPAT - Environmental Protection Agency of Region of Tuscany, Area Vasta Costa;* [b] *Italian National Council of Research IPCF;* [c] *iPOOL srl;* [d] *University of Pisa, Physics Department*

14 A - Signal processing and inversion in underwater acoustics 2
Thursday, September 12 | K5
Chairs: M. Taroudakis, S. Dosso

8:40 **Acoustic Signal Characterization using Hidden Markov Models with applications in Acoustical Oceanography.**
Costas Smaragdakis and Michael Taroudakis
FORTH-IACM & University of Crete

9:00 **Target Detection Method for Reverberant Environments in Continuous-wave Active Sonar System based on Group Multichannel Nonnegative Matrix Factorization**
Lee Seokjin
Kyungpook National University, Daegu (Korea)

9:20 **Estimation of bottom parameters using measurement and analysis of sound intensity fluctuations in the presence of moving nonlinear internal waves in shallow water.**
Boris Katsnelson[a], Valery Grigorev[b], Yanyu Jiang[a] and Yun Ren[c]
[a] *University of Haifa;* [b] *Voronezh University;* [c] *Institute of Acoustics China*

9:40 **Method to determine far-field beampattern of long array from subarray beampattern measurements**
Donghwan Jung[a], Jeasoo Kim[a], Hongju Gu[b] and Sungyong Moon[c]
[a] *Korea Maritime and Ocean University, Busan;* [b] *Daewoo Shipbuilding & Marine Engineering Co., Ltd;* [c] *SonarTechCo., Ltd, Korea*

13 D - Computational flow-generated hydroacoustics
Thursday, September 12 | K5
Chairs: P. Croaker, M. Liefvendahl

10:40 **Simulation of flow noise generated by the interaction of inflow turbulence with the leading edge of a foil**
Mattias Liefvendahl
Swedish Defence Research Agency (FOI)

11:00 **Experimental and numerical investigations of the sound radiation of hubless propellers**
Max Hieke[a], Hoshang Sultani[b], Frank-Hendrik Wurm[a] and Otto von Estorff[b]
[a] *University of Rostock;* [b] *Hamburg University of Technology*

11:20 Noise from a blunt edged flat plate in a reverberant water tunnel
Paul Croaker[a], James Venning[b], Mahmoud Karimi[a], Paul Brandner[b], Con Doolan[a] and Nicole Kessissoglou[a]
[a] *UNSW Australia;* [b] *Cavitation Research Laboratory, Australian Maritime College*

13 E - Aeroacoustics and Flow Controls
Thursday, September 12 | K5
Chair: T.P. Chong

14:00 Aerofoil trailing edge self-noise reduction by Surface Mounted Attenuation Devices
Edvard Schroeder[a], Tze Pei Chong[a], M. Kamruzzaman[b], Jeremy Hurault[b] and Phillip Joseph[c]
[a] *Brunel University London;* [b] *Vestas Technology UK Ltd;* [c] *Univ. of Southampton*

14:20 The Effect of flow-permeable material on the Flow Field and the Aerodynamic Noise of Cylinders
Thomas Geyer and Richard Peschel
BTU Cottbus-Senftenberg

14:40 On the Effects of Leading Edge Serrations on Aeroacoustic Properties during Stall
Yannick D. Mayer[a], Bin Zang[b] and Mahdi Azarpeyvand[b]
[a] *Uni Bristol, Aerospace Department;* [b] *University of Bristol*

15:00 Optimisation of Leading-edge Undulations of a NACA 65(12)-10 Aerofoil for Noise Reduction and Aerodynamic Enhancement
Kwing-So Choi[a], Jung-Hoon Kim[a], Giovanni Lacagnina[b], Phillip Joseph[b], Seyed Mohammad Hasheminejad[c], Tze Pei Chong[c], Muhammad Farrukh Shahab[d], Mohammad Omidyeganeh[d] and Alfredo Pinelli[d]
[a] *University of Nottingham;* [b] *University of Southampton;* [c] *Brunel University London;* [d] *City, University of London*

15:20 Leading- and trailing-edge noise reduction using serrations of new geometry
Benshuai Lyu[a], Lorna Ayton[a] and Chaitanya Paruchuri[b]
[a] *University of Cambridge;* [b] *Engineering, University of Southampton*

16:20 Aeroacoustics and Aerodynamic Study of Trailing-edge Serrated Airfoils in Tandem Configuration
Xiao Liu[a], Syamir Alihan Showkat Ali[a], Mahdi Azarpeyvand[a] and Yannick D. Mayer[b]
[a] *University of Bristol;* [b] *Uni Bristol, Aerospace Department*

16:40 Numerical and experimental investigation on effects of blade tip-rake on vortex structure and aerodynamic noise of axial-flow fans in an outdoor unit of air-conditioners
Seo Yoon Ryu[a], Cheolung Cheong[a], Jong-Uk Kim[b], Byeong Il Park[b] and Se Min Park[b]
[a] *Pusan National University, Korea;* [b] *LG electronics*

17:00 **An Experimental study on Aeroacoustics and Shock Dynamics Associated with Hartmann Whistle**
Sonu K Thomas and K Srinivasan
Indian Institute of Technology Madras

17:20 **Near-field Aeroacoustic Characteristics of a Stalled NACA 0012 Aerofoil**
Yannick D. Mayer[a], Bin Zang[b] and Mahdi Azarpeyvand[b]
[a] *Uni Bristol, Aerospace Department;* [b] *University of Bristol*

17:40 **Super-resolution imaging for aeroacoustics**
Xun Huang and Wangqiao Chen
Hong Kong University of Science and Technology

16 A - Articulation and other transients
Thursday, September 12 | K6
Chair: V. Chatziioannou

8:40 **Assessing the role of onsets for musical instrument identification in an auditory modeling framework**
Kai Siedenburg, Marc René Schädler and David Hülsmeier
University of Oldenburg

9:00 **The Role of Attack Transients in Timbral Brightness Perception**
Charalampos Saitis[a], Kai Siedenburg[b], Paul M. Schuladen[c] and Christoph Reuter[d]
[a] *Centre for Digital Music, Queen Mary University of London;* [b] *University of Oldenburg;* [c] *Technische Universität Berlin, Audio Communication Group;* [d] *University of Vienna, Institute of Musicology*

9:20 **Non-iterative, conservative schemes for geometrically exact nonlinear string vibration**
Michele Ducceschi and Stefan Bilbao
Acoustics and Audio Group, University of Edinburgh

9:40 **Numerical simulation of transients in single-reed woodwind instruments**
Sebastian Schmutzhard[a], Montserrat Pàmies-Vilà[b], Alex Hofmann[b] and Vasileios Chatziioannou[b]
[a] *Acoustics Research Institute, Vienna;* [b] *Department of Music Acoustics, University of Music and Performing Arts Vienna*

10:20 **The effect of fast trombone slide glissandi on the mechanics of artificial lips**
Amaya Lopez-Carromero[a], Jonathan Kemp[b] and Donald Murray Campbell[a]
[a] *University of Edinburgh;* [b] *University of St Andrews*

10:40 **A Survey of Recent Studies on Initial Transients in Free Reed Oscillation**
James Cottingham
Coe College, Cedar Rapids (USA)

11:00 **A Sustained Vowel Replacing algorithm based on Iterative Formant Filtering**
Chun-Tang Hsu and Yi-Wen Liu
National Tsing Hua University, Taiwan

15 A - Uncertainty Quantification in Aero- and Vibro-Acoustics
Thursday, September 12 | K6
Chairs: K. Sepahvand, P. Langer

14:00 **Reliability of experimentally determined damping values**
Christian A. Geweth, Simon Boche, Kheirollah Sepahvand and Steffen Marburg
Technical University of Munich (TUM)

14:20 **Lumped parameter model and Monte Carlo Simulation to study middle ear uncertainties**
Julio A. Cordioli, Lucas Lobato and Stephan Paul
Federal University of Santa Catarina

15 W - General Numerical, computational and theoretical acoustics
Thursday, September 12 | K6
Chairs: S. Marburg, L. Cheng, M. Hornikx

14:40 **Numerical simulation of nonlinear viscothermal acoustic wave propagation**
Jan Albertus de Jong[a] and Erwin Kuipers[b]
[a] *ASCEE, Nijverdal;* [b] *Sonova AG*

15:00 **Adjoint-based computation of shape sensitivity in a Rijke-Tube**
Georg A. Mensah[a], Alessandro Orchini[b] and Jonas P. Moeck[c]
[a] *ETH Zurich - MAVT Dpt - CAPS Lab;* [b] *TU Berlin - Institut für Strömungsmechanik und Technische Akustik;* [c] *NTNU Norway - Department of Energy and Process Engineering*

15:20 **Exploration of the pseudospectral method for auralizations**
Jorge Petrosino, Lucas Fernando Landini, Andres Bonino Reta and Georgina Alejandra Lizaso
Universidad Nacional de Lanus, Argentina

15 D - Boundary and finite element methods in acoustics and vibration 1
Thursday, September 12 | K6
Chairs: H. Waubke, W. Kreuzer

16:20 **Numerical Investigation of Indirect Combustion Noise Mechanisms in a Nozzle**
Thomas Deconinck[a], Antoine Vallon[b], Alexis Appel de Gardane[a], Yves Detandt[c] and César Legendre[a]
[a] *Free Field Technologies, Belgium;* [b] *Safran Helicopter Engines;* [c] *Free Field Technologies, MSC Software Belgium*

16:40 **Air Flow Computations for Helmholtz Resonators in a Sound Field**
Norbert Gorenflo, Tobias Merkel and Jonas Stein
Beuth Hochschule für Technik Berlin

17:00 **The Time-Explicit Nodal Discontinuous Galerkin Method Applied to Acoustic-Structure Interaction Problems**
Kirill Shaposhnikov[a], Mads J. Herring Jensen[a] and Elin Svensson[b]
[a] *COMSOL A/S;* [b] *COMSOL AB*

17:20 **Fast Algorithms Applied to the Acoustical Energy Boundary Element Method**
Matthias Ram and Otto von Estorff
Hamburg University of Technology

17:40 **Efficient Evaluation of Flow Induced Sound Sources at Low Frequency by Fast Multipole BEM**
Takayuki Masumoto[a], Yosuke Yasuda[b], Naohisa Inoue[c] and Tetsuya Sakuma[c]
[a] *Cybernet Systems Co., Ltd.;* [b] *Kanagawa University;* [c] *The University of Tokyo*

18:00 **Efficient Evaluation of Sound Radiation of an Electric Motor Using Model Order Reduction**
Martin Eser[a], Caglar Gürbüz[a], Lennart Moheit[a], Marold Moosrainer[b] and Steffen Marburg[a]
[a] *Technical University of Munich (TUM);* [b] *CADFEM GmbH*

19 W - General Psychoacoustics
Thursday, September 12 | K7/8
Chairs: P. Davies, R. Sottek, K. Yamauchi

8:40 **Simulated Transfer Path Accuracy vs. Sound Perception**
Giorgio Pulvirenti, Nicolas Totaro and Etienne Parizet
Laboratoire Vibrations Acoustique INSA-Lyon

9:00 **Modulation masking patterns for complex-shaped envelopes**
Arne Oetjen, Julian Schiller and Steven van de Par
Carl von Ossietzky University, Acoustics Group, Oldenburg, Germany

9:20 **Audibility of Spectral Dips and Peaks in Broadband Noise**
Léopold Kritly[a], Vojtech Chmelík[b], Yannick Sluyts[a], Christ Glorieux[c] and Monika Rychtarikova[a]
[a] *KU Leuven, Faculty of Architecture;* [b] *STU Bratislava;* [c] *KU Leuven, Dep. of Phys. & Astronomy, Soft matter & Biophysics, Lab. of Acoustic*

9:40 **Effects of Length of Carrier Phrase on Release from Masking in Multi-talker voice guidance**
Hayato Sato[a], Masayuki Morimoto[a], Kazuhiro Iida[b] and Hiroshi Sato[c]
[a] *Kobe University;* [b] *Chiba Institute of Technology;* [c] *National Institute of Advanced Industrial Science and Technology, Japan*

10:00 **Influence of Full-Body Vibration Adapted to Foreground Components on High-Level Perception of Reality**
Shota Abe[a], Zhenglie Cui[a], Shuichi Sakamoto[a], Yôiti Suzuki[a] and Jiro Gyoba[b]
[a] *Research Institute of Electrical Communication, Tohoku University;* [b] *Graduate School of Arts and Letters, Tohoku University*

19 B - Binaural Phenomena in Psychoacoustics
Thursday, September 12 | K7/8
Chairs: S. van de Par, L.H. Carney

10:20 Improved binaural speech intelligibility by adding reverberation to the target speaker
Julian Grosse and Steven van de Par
University of Oldenburg

10:40 Modeling binaural detection of a Gaussian noise target in the presence of a lead/lag masker
Jonas Braasch[a], M. Torben Pastore[b] and Yi Zhou[b]
[a] *Rensselaer Polytechnic Institute;* [b] *Arizona State University, USA*

11:00 Reconsidering binaural phenomena in terms of interaural neural fluctuation differences
Laurel H. Carney
University of Rochester (USA)

11:20 Binaural masking level difference as a function of noise bandwidth and noise delay
Mathias Dietz[a], Kristin Bracklo[a] and Stephan D. Ewert[b]
[a] *Universität Oldenburg;* [b] *Carl von Ossietzky University, Medical Physics, Oldenburg, Germany*

14:00 Spatial unmasking of circular moving sound sources in the free field
Norbert Kolotzek and Bernhard U. Seeber
Audio Information Processing, Technical University of Munich

14:20 Understanding auditory motion perception: the role of temporal fine structure and envelope cues
Michaela Warnecke and Ruth Litovsky
University of Wisconsin-Madison

14:40 Hearing protections: effects on HRTFs and localization accuracy
Lorenz Kroener[a], Alexandre Garcia[b], Véronique Zimpfer[c] and Christophe Langrenne[b]
[a] *CNAM - LMSSC / ISL - APC group;* [b] *CNAM - LMSSC;* [c] *ISL - APC group, Saint-Louis (F)*

19 E - Metrics and Modeling Perception of Sound Attributes
Thursday, September 12 | K7/8
Chairs: J. Becker, F. Völk, P. Davies

15:00 **Temporal weights in loudness judgments: A review**
Daniel Oberfeld-Twistel[a], Alexander Fischenich[a], Jan Hots[b] and Jesko Verhey[b]
[a] *Johannes Gutenberg-Universität Mainz;* [b] *University of Magdeburg*

15:20 **The loudness detection of the first and last pulse of a periodic sequence: role of temporal integration and masking.**
Liudmila Rimskaya-Korsakova[a] and Dmitriy Nechaev[b]
[a] *JSC N.N. Andreev Acoustics Institute, Moscow;* [b] *A.N. Severtsov Institute of Ecology and Evolution, Moscow*

16:20 **Pitch Strength and Asymmetry in Global Loudness between Rising- and Falling-Intensity Sounds**
Sabine Meunier[a], Jacques Chatron[b], Patrick Susini[c] and Emmanuel Ponsot[d]
[a] *LMA-CNRS, Marseille, France;* [b] *Aix Marseille Univ, CNRS, Centrale Marseille, LMA UMR 7031, Marseille, France;* [c] *STMS Lab (Ircam-CNRS-UPMC), Paris, France;* [d] *Laboratoire des Systèmes Perceptifs (CNRS UMR 8248), ENS, Paris, France*

16:40 **Progress in Tonality Calculation**
Julian Becker, Roland Sottek and Thiago Lobato
HEAD acoustics GmbH

17:00 **Spectral prominence influencing the perceived strength of psychoacoustic measures**
Arne Oetjen and Steven van de Par
Carl von Ossietzky University, Acoustics Group, Oldenburg

17:20 **Expression of the Feelings to Noise using Cepstral Parameters**
Masanori Akita, Wataru Saito, Satoshi Ito and Yoichi Midorikawa
Oita University

17:40 **Modelling Monaural and Binaural Audio Quality**
Stephan D. Ewert[a], Jan-Hendrik Fleßner[b] and Thomas Biberger[c]
[a] *Carl von Ossietzky University, Medical Physics, Oldenburg, Germany;* [b] *HörTech gGmbH;* [c] *Medizinische Physik & Cluster of Excellence Hearing4All*

17 D - Acoustic Metamaterials 2
Thursday, September 12 | K9
Chair: M. Guild

8:40 **Non-reciprocity in discrete and continuous lattice systems via mechanical modulation**
Michael R. Haberman, Benjamin Goldsberry and Samuel Wallen
The University of Texas at Austin

9:00 **Sound Insulation using Metaatoms with Willis Coupling**
Anton Melnikov[a], Sebastian Oberst[b], David Powell[c] and Steffen Marburg[d]
[a] *Fraunhofer IPMS, Dresden;* [b] *University of Technology Sydney;* [c] *UNSW Canberra;* [d] *Technical University of Munich (TUM)*

9:20 **Vibration control by metamaterials consisting of lattices of resonant cavities in a thin plate**
José Sánchez-Dehesa, Penglin Gao and Alfonso Climente
The Polytechnic University of Valencia

9:40 **Design of a Resonator-Based Metamaterial for Broadband Control of Transverse Cable Vibration**
Lawrence Singleton, Jordan Cheer and Stephen Daley
Institute of Sound and Vibration Research, Southampton

10:20 **Airborne and ultrasonic characterisation of acoustic surface waves on structured plates**
Tim Starkey[a], Alastair Hibbins[a], J Roy Sambles[a] and John Smith[b]
[a] *University of Exeter;* [b] *DSTL, Salisbury (UK)*

10:40 **Design Of Multi-directional Acoustic Cloaks Using Two-dimensional Shape Optimization And The Boundary Element Method**
Peter Risby Andersen[a], Vicente Cutanda Henriquez[a], Lorenzo Sanchis[b] and José Sánchez-Dehesa[b]
[a] *Technical University of Denmark;* [b] *The Polytechnic University of Valencia*

17 F - Acoustic propagation and flames in combustors
Thursday, September 12 | K9
Chair: J.B.W. Kok

11:00 **Background-oriented Schlieren of entropy waves advected in straight duct**
Markus Weilenmann, Yuan Xiong and Nicolas Noiray
ETH Zürich - MAVT Dpt - CAPS Lab

11:20 **Study of the Relation between Entropy Flux Density Production and Thermal Efficiency of a Thermoacoustic Engine**
Mariko Senga and Shinya Hasegawa
Tokai University

14:00 **Validity Assessments of Optical Transfer Function Measurements for Technically Premixed Flames**
Audrey Blondé, Giacomo Bonciolini and Nicolas Noiray
ETH Zürich - MAVT Dpt - CAPS Lab

14:20 **Experiments on self-excited thermoacoustic oscillations in an air-filled closed tube**
Nobumasa Sugimoto and Keisuke Minamigawa
Department of Pure and Applied Physics, Kansai University

14:40 Amplitude Death in Coupled Thermoacoustic Oscillators with Frequency Detuning
Hiroaki Hyodo and Tetsushi Biwa
Tohoku University, Sendai

15:00 A semi-analytical solution for acoustic wave propogation in varying area ducts with mean flow
Saikumar Reddy Yeddula and Aimee Morgans
Imperial College London

25 C - High-frequency and ultrasonic emissions in air: Applications, measurement and human well-being
Thursday, September 12 | K9
Chairs: T. Leighton, M. Ueda, M. Kupnik

15:20 Ultrasound in Air: New applications need improved measurement methods and procedures, and appreciation of any adverse effects on humans
Timothy Leighton
ISVR, University of Southampton

15:40 Airborne ultrasound noise at workplaces
Christoph Kling[a], Robert Schöneweiß[a], Andrea Wolff[b], Christian Ullisch-Nelken[b] and Christian Koch[a]
[a] *Physik.-Techn. Bundesanstalt (PTB);* [b] *Institut für Arbeitsschutz (IFA) der Deutschen Gesetzlichen Unfallversicherung*

16:20 Quantitative Characterization of High-Intensity Focused Airborne Ultrasonic Fields
Marko Liebler[a], Christoph Kling[b], Benjamin Best[a], André Gerlach[a] and Christian Koch[b]
[a] *Robert Bosch GmbH, Germany;* [b] *Physik.-Techn. Bundesanstalt (PTB)*

16:40 Completing the Traceability Chain for Airborne Ultrasound
Salvador Barrera-Figueroa
Danish Fundamental Metrology A/S

17:00 Understanding Extended High-Frequency Hearing Thresholds
Chris Plack[a], Hannah Guest[a] and Samuele Carcagno[b]
[a] *The University of Manchester;* [b] *Lancaster University*

17:20 Exposure levels for parametric arrays in light of guideline ambiguities
Craig N Dolder[a], Mark Fletcher[a], Sian Lloyd Jones[b], Ben Lineton[a] and Timothy Leighton[a]
[a] *Institute of Sound and Vibration Research, Southampton;* [b] *Department of Audiology and Hearing Therapy, Royal South Hants Hospital, Southampton*

17:40 Electrostatically Driven Airborne Ultrasound Transducer with Perforated Backplate for Nonlinear Acoustic Applications
Takaaki Kamigaki, Yuki Ninomiya and Hiroyuki Shinoda
The University of Tokyo

18:00 Auditory evaluation of very-high-frequency sounds radiated from the Japanese trains part 2

Mari Ueda[a], Shunsuke Hanazaki[a], Hironobo Takahashi[b] and Masaaki Hiroe[c]
[a] *Kanagawa Institute of Technology;* [b] *National Institute for Industrial Science and Technology, Japan;* [c] *Kobayasi Institute of Physical Research*

Sessions on Friday, 13 September

Keynote Friday
Friday, September 13 | Europa
Abstract: see page 58
Chair: Martin Ochmann

11:45 **Thermoacoustic instabilities - physical mechanisms and mathematical modelling**
Maria Heckl
Keele University

09.2 E - Noise and health in children
Friday, September 13 | Europa
Chairs: I. van Kamp, K. Kawai

8:40 **Noise and health in children with autism spectrum disorder**
Hidetoshi Takahashi
Kochi University, Japan

9:00 **Effects of aircraft noise and living environment on children's well-being and health**
Jan Spilski[a], Martin Rumberg[a], Martin Berchtold[a], Kirstin Bergström[a], Ulrich Möhler[b], Thomas Lachmann[a] and Maria Klatte[a]
[a] *University of Kaiserslautern;* [b] *Möhler + Partner Ingenieure AG*

9:20 **Restorative soundscapes and stress recovery in Children**
Shan Shu and Hui Ma
Tianjin University

9:40 **Associations of traffic noise and air pollution with birth outcomes in Alpine areas: Results from the UIT and BBT surveys**
Angel Mario Dzhambov[a], Iana Markevych[b] and Peter Lercher[c]
[a] *Medical University of Plovdiv, Bulgaria;* [b] *Helmholtz Zentrum München; Ludwig Maximilian University of Munich, Germany;* [c] *TU-Graz, Austria*

10:00 **Effect of Sound Absorption on Children's Behavior in Daycare rooms: a Field Experiment with Installation of Temporary Sound Absorption.**
Keiji Kawai, Shota Masumoto and Ryuichiro Yamane
Kumamoto University

01 D - Signal processing and systems for active control of noise and vibration
Friday, September 13 | Europa
Chairs: M. Pawelczyk, Y. Kajikawa

10:20 **Comparisons of Two Virtual Sensing Methods for Broadband Noise**
Reo Maeda and Yoshinobu Kajikawa
Kansai University, Osaka

10:40 **Virtual Sensing Technique for a Multi-Reference and Multi-Error Active Noise Control System**
Rong Xie, Chuang Shi and Huiyong Li
UESTC, Chengdu, China

11:00 **A Method for Detecting Convergence Completion of Adaptive Filter Cancelling Feedback Path Appeared in Active Noise Control Systems**
Kensaku Fujii[a] and Mitsuji Muneyasu[b]
[a] *Kodaway Laboratory;* [b] *Kansai University, Osaka*

11:20 **Practical consideration and implementation for avoiding Saturation of large amplitude Active Noise Control**
Shi Dongyuan, Woon-Seng Gan, Bhan Lam and Shulin Wen
Nanyang Technological University, Singapore

14:00 **Empirical Study of Decentralized Multi-Channel Active Noise Control Based on the Genetic Algorithm**
Guoqiang Zhang[a], Jiancheng Tao[b] and Xiaojun Qiu[a]
[a] *University of Technology Sydney;* [b] *Nanjing University*

14:20 **Design and Construction of Loudspeakers with Low-Bl Drivers for Low-frequency Active Noise Control Applications**
Marios Giouvanakis, Konstantinos Kasidakis, Christos Sevastiadis and George Papanikolaou
Aristotle University of Thessaloniki

22 C - Sound quality of fans and HVAC-systems
Friday, September 13 | Europa
Chairs: S. Töpken, T. Masayuki

14:40 **Sound Quality Evaluation of Refrigerated Truck Noise**
Weonchan Sung[a], Patricia Davies[a] and J. Stuart Bolton[b]
[a] *Purdue University, USA;* [b] *Herrick Laboratories/Purdue University*

15:00 **Quantification of the unpleasantness of fan noise in the form of preference-equivalent levels**
Stephan Töpken and Steven van de Par
Carl von Ossietzky University, Acoustics group, Oldenburg

15:20 **"Humming" or "Hissing"? - Psychoacoustical investigation of sounds from heat pumps**
Marc Schneider[a] and Carolin Feldmann[b]
[a] *ebm-papst Mulfingen GmbH & Co. KG;* [b] *University of Siegen*

15:40 **HVAC noise perception in car cabin: a preliminary comparison between ICEVs and HEVs**
Massimiliano Masullo[a], Katsuya Yamauchi[b], Yumi Nakatani[c] and Luigi Maffei[a]
[a] *Università degli Studi della Campania, Aversa;* [b] *Kyushu University, Faculty of Design;* [c] *Kyushu University*

16:00 **Improvement of Construction Machine Noise**
Takeo Hashimoto[a] and Shigeko Hatano[b]
Seikei University, Tokyo

16:20 **Study on the Evaluation Index of the Tonal Noise Components Generated from Small Fan**
Takefumi Nakano and Gaku Minorikawa
Hosei University, Tokyo

16:40 **Acoustic attenuators for aggressive environments**
Chris van Dijk
Alara-Lukagro, Netherlands

12 D - Measurement and modelling of electro-acoustic transducers
Friday, September 13 | Brüssel
Chairs: M. Melon, G. Behler

8:40 **Evaluation of Non-linear Distortion in Compression Chamber of a Low Frequency Horn**
Tomasz Nowak, Andrzej Dobrucki and Romuald Bolejko
Wrocław University of Technology

9:00 **Modelling of a Compression Driver using Lumped Elements**
Joerg Panzer
R&D TEAM, Germany

9:20 **Acoustic simulation for high intensity sound source with Helmholtz resonator**
Zinan Li, Bo Zhang, Qiqi Chen, Liheng Wang and Yutian Bai
School of Mechanical Engineering, Ningxia University, China

9:40 **Measurement of Loudspeaker Parameters: A Pedagogical Approach**
Antonin Novak
Le Mans Université

10:20 **Effective Radiation Area (Sd) for Axisymmetric Loudspeakers Radiating in an Infinite Baffle Using a Near Field Analysis**
Luis Angelo Velarde Criado and Jorge N. Moreno
Pontificia Universidad Católica del Perú

10:40 Measurement of the Back Loading of a Loudspeaker Mounted on a Closed Enclosure - A First Approach
Jorge N. Moreno, Richard Rivera and Luis Angelo Velarde Criado
Pontificia Universidad Católica del Perú

11:00 Measurement of the Acoustic Impedance of Multi Resonant Systems - A Prior Step to Determine Parasitic Resonances in Magnetic Circuits of Loudspeakers
Cesar Arthur Castro and Jorge N. Moreno
Pontificia Universidad Católica del Perú

11:20 On the relevance of transducer measurements for real-world applications
Martin Schneider
Georg Neumann GmbH

14:00 Comparison of numerical methods for miniature loudspeaker modelling
Juha Backman
Huawei Technologies, Tampere

14:20 Electrostatic All-Silicon MEMS Speakers for In-Ear Audio Applications - Acoustic Measurements and Modelling Approach
Lutz Ehrig, Hermann Schenk, Franziska Wall, Anton Melnikov, Michael Stolz, Sergiu Langa, Bert Kaiser and Holger Conrad
Fraunhofer IPMS, Dresden

14:40 Prediction of acoustic emission of a rigid electrodes DEAP loudspeaker
Emiliano Rustighi[a], William Kaal[b] and Sven Herold[b]
[a] *University of Southampton;* [b] *Fraunhofer LBF, Darmstadt*

15:00 Sensorless Measurement of the Acoustic Impedance of a Loudspeaker
Romain Boulandet
HEPIA, HES-SO Genève

15:20 Modelling of a MEMS transducer using approximate eigenfunctions of a square clamped plate
Karina Abramova[a], Petr Honzík[a], Nicolas Joly[b], Stéphane Durand[b] and Michel Bruneau[b]
[a] *Czech Technical University in Prague;* [b] *Laboratoire d'Acoustique de l'Université du Mans*

16:00 Temperature effects on the mechanical-acoustic properties of condenser microphones: experimental characterization
Cécile Guianvarc'H[a], Thomas Lavergne[a], Lara Risegari[a], Petr Honzík[b], Dominique Rodrigues[a] and Roberto M. Gavioso[c]
[a] *Laboratoire Commun de Métrologie LNE-Cnam (France);* [b] *Czech Technical University in Prague;* [c] *Istituto Nazionale di Ricerca Metrologica, Torino*

16:20 **Analytical modelling of a MEMS transducer composed of a rigid micro-beam attached at one end to a flat spring moving against a reduced-size backplate**
Petr Honzík[a], Antonin Novak[b], Stéphane Durand[c], Nicolas Joly[c] and Michel Bruneau[c]
[a] *Czech Technical University in Prague;* [b] *Le Mans Université;* [c] *Lab. d'Acoustique de l'Université du Mans*

04 C - Acoustic regulations and quality classes for buildings 2
Friday, September 13 | Berlin 1
Chairs: B. Rasmussen, J. Jeongho

8:40 **The New Italian standard UNI 11532 on acoustics for schools**
Arianna Astolfi[a], Linda Parati[b], Dario D'Orazio[c] and Massimo Garai[c]
[a] *Politecnico di Torino - Department of Energy;* [b] *Acustica Parati & Co.;* [c] *University of Bologna*

9:00 **New Finnish building acoustic regulation**
Mikko Kylliäinen[a] and Ari Saarinen[b]
[a] *Tampere University of Technology;* [b] *Ministry of the Environment, Finland*

9:20 **Acoustic requirements vs experienced sound in wood structures**
Klas Hagberg
Acouwood AB, Lund (S)

9:40 **The increment in cost and other parameters to upgrade quality classes in sound insulation**
Bilge San Ozbilen and Nurgun Bayazit
Istanbul Technical University

06 A - Modern history of acoustics
Friday, September 13 | Berlin 1
Chairs: J. Bruyninckx, V. Tkaczyk

10:20 **From Noise Control to Intelligibility: a history of office acoustics**
Joeri Bruyninckx
Maastricht University

10:40 **Sound & Science: Digital Histories: Navigations through the History of Acoustics**
Viktoria Tkaczyk
Max Planck Institute for the History of Science / Humboldt-Universität zu Berlin

11:00 **The Consolidation of Engineering Acoustics as an Example of Contextual History of Science**
Joachim Scheuren
Müller-BBM GmbH, Planegg

11:20 Echoes and Guns: Objects, Practices and Aims in Early Modern Acoustics
Leendert van der Miesen
Humboldt University of Berlin/MPIWG

14:00 The History of Acoustics in Breslau/Wroclaw before and after 1945: A Bridge over Time
Andrzej Dobrucki[a] and Peter Koeltzsch[b]
[a] *Wrocław University of Technology;* [b] *Technische Universität Dresden*

14:20 The Church building secularization through its sound Sound in a contemporary case study
Maria Cairoli and Livio Mazzarella
Politecnico of Milan

26 B - Novel Ultrasound Imaging and Stimulation
Friday, September 13 | Berlin 1
Chairs: J. Raymond, S. Catheline, L. Verhagen, E. Konafagou

14:40 Local Phase Velocity Imaging (LPVI) as a New Technique for Shear Wave Elastography
Matthew Urban and Piotr Kijanka
Mayo Clinic, Rochester (USA)

15:00 Transcranial focusing of arbitrary ultrasonic fields using acoustic holograms
Sergio Jiménez-Gambín, Noé Jiménez, Jose M. Benlloch and Francisco Camarena
Instituto de Instrumentación para Imagen Molecular I3M-CSIC, Valencia

15:40 High Frame Rate Ultrasound: Zooming into the Time Axis for Complex Flow Visualization
Alfred Yu, Billy Yiu and Jason Au
University of Waterloo, Canada

16:00 Viscoelasticity measurement comparison between microelastography and surface fluctuations
Pol Grasland-Mongrain[a], Stefan Catheline[b], Ali Zorgani[b], Ludovic Bellon[a], Thomas Gibaud[a] and Sébastien Manneville[a]
[a] *ENS de Lyon;* [b] *LabTAU, INSERM u1032, Lyon*

12 A - Spatial audio: Reproduction techniques and signal processing 2
Friday, September 13 | Berlin 2

8:40 Estimation of Cross-Talk Compensation Filter using Bone Conduction Ear Microphone
Irwansyah Irwansyah and Tsuyoshi Usagawa
Kumamoto University

9:00 **Primary ambient extraction for random sign Hilbert filtering decorrelation**
Lu Chen, Chuang Shi and Huiyong Li
UESTC, Chengdu, China

9:20 **Analysis of Head Rotation Trajectories During a Sound Localization Task**
Yukio Iwaya[a] and Brian F. G. Katz[b]
[a] *Tohoku Gakuin University / Sorbonne Université, Paris;* [b] *Sorbonne Université, CNRS, Institut d'Alembert*

10:00 **Real time audio encoding/decoding system using MPEG-H 3D Audio toward advancement of terrestrial broadcasting technology**
Takehiro Sugimoto, Shuichi Aoki, Satoshi Oode, Tomomi Hasegawa, Hiroki Kubo and Hiroyuki Okubo
NHK, Tokyo

10:20 **Machine-learning-based estimation of reverberation time using room geometry for room effect rendering**
Ricardo Falcon Perez, Georg Götz and Ville Pulkki
Aalto University

10:40 **The Perceptual Effect of Reflective Surfaces on Acoustic Crosstalk Cancelation Using an 8-Channel Linear Loudspeaker Array**
Karim Bahri and Jens Ahrens
Chalmers University of Technology, Gothenburg

21 P - Noise indicators and exposure assessment for health impact and soundscape studies
Friday, September 13 | Berlin 2
Chairs: P. Lercher, P. Aumond, A. Can

11:00 **Exploring associations between soundscape assessment, perceived safety and well-being: a pilot field study in Granary Square, London**
Francesco Aletta[a], Luca Molinero[b], Arianna Astolfi[b], Sonja Di Blasio[b], Louena Shtrepi[b], Tin Oberman[a] and Jian Kang[a]
[a] *University College London;* [b] *Politecnico di Torino, Department of Energy*

11:20 **Relationships between noise annoyance, urban soundscape and acoustic indicators in the French city of Lorient**
Pierre Aumond[a], Arnaud Can[a] and Catherine Lavandier[b]
[a] *IFSTTAR, CEREMA, UMRAE, France;* [b] *Université de Cergy-Pontoise*

14:00 **SiRENE-Survey Part 1: Exposure-effect relationships for transportation noise annoyance in Switzerland**
Mark Brink[a] and Jean Marc Wunderli[b]
[a] *Swiss Federal Office for the Environment;* [b] *Empa, Swiss Federal Laboratories for Materials Science and Technology*

14:20 SiRENE-Survey Part 2: Effects of Intermittent versus Continuous Noise on Annoyance Reactions
Jean Marc Wunderli[a] and Mark Brink[b]
[a] *Empa, Swiss Federal Laboratories for Materials Science and Technology;* [b] *Swiss Federal Office for the Environment*

14:40 Noise and hypertension: Testing alternative acoustic indicators
Peter Lercher[a], Reto Pieren[b] and Jean Marc Wunderli[b]
[a] *TU-Graz, Austria;* [b] *Empa, Swiss Federal Laboratories for Materials Science and Technology*

15:00 Opportunistic In-Vehicle Noise Measurements assess Road Surface Quality to Improve Noise Mapping: Preliminary Results from the MobiSense Project
Luc Dekoninck[a], Wout van Hauwermeiren[a], Joachim David[a], Karlo Filipan[b], Toon de Pessemier[a], Bert de Coensel[a], Wout Joseph[a], Luc Martens[a] and Dick Botteldooren[b]
[a] *Ghent University;* [b] *Ghent University, Departm. of Information Technology, WAVES research group*

15:40 Estimation of psychoacoustic indices and annoying auditory sensations from sound pressure levels of urban road traffic
Catherine Marquis-Favre[a], Pierre-Augustin Vallin[a], Laure-Anne Gille[a] and Wolfgang Ellermeier[b]
[a] *Univ Lyon, ENTPE, LGCB;* [b] *TU Darmstadt, Germany*

16:00 Noise indicator evaluation of road and rail traffic noise for indoor- outdoor differences in acoustic parameters
Manuel Lienhart, Peter Lercher, Michael Cik and Martin Fellendorf
Graz University of Technology, Austria

16:20 Relative Duration of Quiet Periods Between Events Influences Noise Annoyance: a Laboratory Experiment with Helicopter Sounds
Armin Taghipour, Reto Pieren and Beat Schäffer
Empa, Swiss Federal Laboratories for Materials Science and Technology

27 A - Auditory cognition in interactive virtual environments
Friday, September 13 | Berlin 3
Chairs: J. Fels, A. Raake

8:40 Cognitive indicators for acoustic source localization and presence in a vivid 3D scene
Patrick Ruediger[a], Jan Spilski[b], Nûjîn Kartal[c], Sebastian Gsuck[c], Nils Ove Beese[a], Sabine Schlittmeier[d], Thomas Lachmann[a] and Achim Ebert[a]
[a] *Technische Universität Kaiserslautern;* [b] *CCS (University of Kaiserslautern);* [c] *Media Apes GmbH;* [d] *RWTH Aachen University, Institute of Psychology*

9:00 **The Ability to Allocate Attentional Resources to a Memory Task Predicts Speech-on-Speech Masking for Older Listeners**
Frederick Jerome Gallun and Kasey Marie Jakien
U.S. Dept. Veterans Affairs, Portland

9:20 **Examining auditory selective attention in realistic, natural environments**
Josefa Oberem[a], Julia Seibold[b], Iring Koch[b] and Janina Fels[a]
[a] *Teaching and Research Area of Medical Acoustics, Institute of Technical Acoustics, RWTH Aachen University;* [b] *Institute of Psychology, RWTH Aachen University*

9:40 **Attentional mechanisms in static and dynamic cocktail-party listening**
Hartmut Meister, Fabian Wenzel, Axel Gehlen and Martin Walger
University of Cologne

10:00 **Leveraging adaptation to study perceptual weighting of interaural time differences**
Antje Ihlefeld and Nima Alamatsaz
New Jersey Institute of Technology

10:20 **In Between Spaces: A Sonic Time An Interactive Virtual Exhibition on Work Songs, Sounds, Utterances**
Shubhasree Bhattacharyya
Jindal Global University

19 D - Cognitive Stimulus Integration (in the context of auditory sensations and sound perceptions)
Friday, September 13 | Berlin 3
Chairs: A. Fiebig, T. Hashimoto

10:40 **Cognitive load influences the evaluation of complex acoustical scenarios**
Jochen Steffens, Franz Müller, Melanie Schulz and Samuel Gibson
Technische Universität Berlin

11:00 **The influence of extreme response style on sound evaluations**
Christoph Jakobs, Dustin Selbach, Sebastian Böldt and Jochen Steffens
Technische Universität Berlin

11:20 **Feature analysis of spectral cues and loudness for perception of sound direction by people with unilateral hearing loss**
Fumikazu Saze[a], Kan Okubo[a] and Kazuhiro Iida[b]
[a] *Tokyo Metropolitan University;* [b] *Chiba Institute of Technology*

18 E - Assessment of hearing ability in realistic environments
Friday, September 13 | Berlin 3
Chairs: J. Fels, M. Marschall, J.M. Buchholz

14:00 **LEAP, a new laboratory test for evaluating auditory preference**
Karolina Smeds, Martin Dahlquist, Josefina Larsson, Petra Herrlin and Florian Wolters
Widex A/S, ORCA Europe, Stockholm

14:20 **Realistic Audiovisual Listening Environments in the Lab: Analysis of Movement Behavior and Consequences for Hearing Aids**
Maartje Hendrikse[a], Gerard Llorach[b], Giso Grimm[a] and Volker Hohmann[a]
[a] *Carl-von-Ossietzky Universität Oldenburg;* [b] *Hörzentrum Oldenburg*

14:40 **Speech Intelligibility in a Realistic Virtual Sound Environment**
Naim Mansour[a], Marton Marschall[b], Adam Westermann[c], Tobias May[a] and Torsten Dau[a]
[a] *Hearing Systems Group, DTU - Technical University of Denmark;* [b] *DTU Electrical Engineering;* [c] *Widex A/S, Lynge*

15:00 **Evaluating potential EEG-indicators for auditory attention to speech in realistic environmental noise**
Ehsan Eqlimi, Dick Botteldooren and Annelies Bockstael
WAVES research group, Department of Information Technology, Ghent University

15:20 **Influence of varying room acoustic conditions in a speech-in-noise test with radial moving masker, for young and elderly listeners**
Rhoddy Viveros[a], Lukas Aspöck[b] and Janina Fels[a]
[a] *Teaching and Research Area of Medical Acoustics, Institute of Technical Acoustics, RWTH Aachen University;* [b] *Institute of Technical Acoustics, RWTH Aachen University*

15:40 **Assessment of acoustical properties and subjective perception in everyday life**
Inga Holube, Petra von Gablenz, Ulrik Kowalk and Jörg Bitzer
Jade University of Applied Sciences, Oldenburg

16:00 **Behavior and Speech Intelligibility in a Changing Multi-talker Environment**
Lubos Hladek and Bernhard U. Seeber
Audio Information Processing, Technical University of Munich

16:20 **Effect of test realism on speech-in-noise outcomes with bilateral cochlear implant users**
Jörg M. Buchholz[a], Javier Badajoz Davila[a] and Richard van Hoesel[b]
[a] *Macquarie University, Sydney;* [b] *HEARing Corporate Research Centre, Carlton, Australia*

16:40 **Spatial release from masking assessment in virtual reality for bilateral cochlear implants users**
Lorenzo Picinali[a], Marina Salorio-Corbetto[a] and Deborah Vickers[b]
[a] *Imperial College London;* [b] *University of Cambridge*

10 W - General Vehicle acoustics (air, road, rail, water, ...)
Friday, September 13 | Lissabon 1
Chairs: W. Kropp, J.S. Bolton, T. Hashimoto

8:40 **Asphalt-surface defects detection, based on Tyre/Road noise analysis and geo-processing**
Carlos Andrés Ramos Romero and César Asensio
I2A2-Universidad Politécnica de Madrid

9:00 **Investigation on Abnormal Gear Rattle Noise in Automated Manual Transmission (AMT) after Gear Upshifting**
Abhishek Lakhanlal Vaishya, Archan Sunilbhai Pujara, Devendra Kumar Khare, Kingshuk Satpathy and Vivek Singh
Maruti Suzuki India Ltd.

9:20 **Study for Whoop Noise Reduction in passenger vehicle with Clutch Hydraulic System**
Devendra Kumar Khare, Anant Saran Pandey and Abhishek Lakhanlal Vaishya
Maruti Suzuki India Ltd.

9:40 **A Study of the Interaction Between Vehicle Exterior Noise Emissions and Vehicle Energy Demands for Different Drive Cycles**
Johan Nygren, Susann Boij, Romain Rumpler and Ciarán O'Reilly
KTH Royal Institute of Technology, Stockholm

10:00 **Development of a Thermally Insulating Vibration Damping Compound**
Alexander Rasa
Pyrotek Noise Control, Australia

10 B - Design of warning sound - from honking impact to sound quality in electric vehicles
Friday, September 13 | Lissabon 1
Chairs: T. Masayuki, M.E. Altinsoy

10:40 **Analysis of vehicle horn use and factors at intersections in an urban area of Taiwan**
Takada Masayuki[a], Shoki Tsunekawa[a], Kazuma Hashimoto[a], Tamaki Inada[a], Yoshinao Oeda[a], Katsuya Yamauchi[b], Ki-Hong Kim[c] and Shin-Ichiro Iwamiya[d]
[a] *Kyushu University;* [b] *Kyushu University, Faculty of Design;* [c] *Surugadai University;* [d] *Nihon University*

11:00 Electric and Autonomous Vehicle: from Sound Quality to Innovative Sound Design
Nicolas Misdariis[a], Andrea Cera[a] and William Rodriguez[b]
[a] *STMS Ircam-CNRS-SU, Paris;* [b] *Groupe Renault - Industrial Design / UX Design Dept*

11:20 Design of Acoustic Vehicle Alerting System Sound Assuming Listening Situation of Pedestrians
Hiroshi Matsuda, Masato Suzuki and Nobuo Machida
Nihon University, Chiba

14:00 Relationship between acoustic characteristics and impression for warning sounds on electric vehicles
Nozomiko Yasui
Saitama University

14:20 Pedestrian awareness of the approach of quiet vehicles: Effect of approach informing sound and designing awareness
Takahiro Kosuge, Tomoya Tsujinaga, Toki Kobayashi, Mariko Tsuruta-Hamamura and Hiroshi Hasegawa
Utsunomiya University

14:40 Effects of localization control of warning sound combined with visual information in vehicle cockpit
Kiichi Naka[a], Katsuya Yamauchi[b], Nobuaki Tanoue[c] and Ayumu Kawata[c]
[a] *Kyushu University, Graduate School of Design;* [b] *Kyushu University, Faculty of Design;* [c] *Pioneer Corporation*

09.2 F - Implication WHO Guidelines
- EUROREGIO Session -
Friday, September 13 | Lissabon 1
Chairs: S. Stansfeld, I. van Kamp

15:00 Study on methodology to perform an environmental noise and health assessment - a guidance document for local authorities in Europe
Irene van Kamp[a], Dirk Schreckenberg[b], Elise van Kempen[a], Mathias Basner[c], Alan Lex Brown[d], Charlotte Clark[e], Danny Houthuijs[a], Oscar Breugelmans[a], Annemarie van Beek[a] and Brigit Janssen-Stelder[a]
[a] *Netherlands National Institute for Public Health and the Environment;* [b] *ZEUS GmbH;* [c] *University of Pennsylvania;* [d] *Griffith School of Environment, Griffith University, Australia;* [e] *Queen Mary University of London*

15:20 Case study of an environmental noise and health assessment in the City of Düsseldorf, Germany
Dirk Schreckenberg[a], Irene van Kamp[b], Sarah Leona Benz[c], Stephan Grossarth[a], Elise van Kempen[b], Mathias Basner[d], Alan Lex Brown[e], Charlotte Clark[f], Danny Houthuijs[b], Oscar Breugelmans[b], Annemarie van Beek[b] and Brigit Janssen-Stelder[b]
[a] *ZEUS GmbH;* [b] *Netherlands National Institute for Public Health and the Environment;* [c] *ZEUS GmbH Hagen;* [d] *University of Pennsylvania;* [e] *Griffith School of Environment, Griffith University, Australia;* [f] *Queen Mary University of London*

15:40 Environmental Noise Guidelines Implementation in Poland
Anna Preis
Adam Mickiewicz University, Poznan

16:00 A critical review of the basis for WHO's new recommendations for limiting annoyance due to environmental noise
Truls Gjestland
Sintef Digital, Trondheim

16:20 Valuing impacts of noise on health - exposure response relationships in current UK guidance and the WHO Environmental Noise Guidelines 2018
Benjamin Fenech and Georgia Rodgers
Public Health England, Birmingham

16:40 Reviewing the Current Guidance in England for the Valuation of Noise Impacts in light of the Publication of the WHO Environmental Noise Guidelines 2018 and other Relevant Evidence
Hilary Notley, Alisha Iyer and Emma Powell
DEFRA, UK

20 N - Acoustics and noise in hospitals: experience and impact on patients, staff and community well-being

Friday, September 13 | Lissabon 2
Chairs: C.-H. Jeong, M.-B. Beldam, P. Barach

8:40 Next Steps in Hospital Noise Research
Ilene Busch-Vishniac
Sonavi Labs, Baltimore

9:00 An investigation of room functions and acoustic demands in selected departments in three Danish hospitals
Thea Mathilde Larsen[a], Cheol-Ho Jeong[b], Mai-Britt Beldam[c], Jonas Brunskog[d] and Christoffer Weitze[a]
[a] *Dansk Lyd Consult;* [b] *Technical University of Denmark (DTU);* [c] *Saint-Gobain Ecophon;* [d] *DTU, Department of Electrical Engineering*

9:20 Cognitive Effects of Noise on Hospital Emergency Department Staff
Khaleela Zaman[a], Peter Dodds[a], Ning Xiang[b] and Paul Barach[c]
[a] *Graduate Program in Architectural Acoustics, Rensselaer Polytechnic Institute;* [b] *Arch. Acoust. RPI, USA;* [c] *Wayne State University School of Medicine*

9:40 Experimental Design to Measure the Effect of Room Acoustics on Prospective Memory of Hospital Nurses
Jikke Reinten[a], Ella Braat-Eggen[b], Maarten Hornikx[c], Helianthe Kort[a] and Armin Kohlrausch[c]
[a] *University of Applied Sciences Utrecht;* [b] *Avans University of Applied Sciences;* [c] *Eindhoven University of Technology*

10:00 A targeted noise reduction observational study for reducing noise in a neonatal intensive unit
Paul Barach, S Chawla, M Dwaihy, D Kamat, S Shankaran, B Panaitescu, B Wang and G Natarajan
Wayne State University School of Medicine, Lincoln (USA)

10:20 Staff experience of sound environment in operating rooms built with non-absorbing modules
Maria Quinn
Saint-Gobain Ecophon, Sweden

10:40 Time-based soundscape evaluation of third-class hospital ward
Anugrah Sabdono Sudarsono, Sugeng Joko Sarwono, Aisyah Shabrina and Laudita Natasha Tamrin
Institut Teknologi Bandung, Indonesia

11:00 Characterizing Community Noise in Hospital
Chiung Yao Chen
Chaoyang University of Technology, Taiwan

11:20 Effect of Head-Movement on Sound-Field Auditory Steady- State Response Measurements
Sreeram Kaithali Narayanan[a], Søren Laugesen[b], Valentina Zapata-Rodriguez[c], Jonas Brunskog[d] and Cheol-Ho Jeong[e]
[a] *Department of Electronic Systems, Aalborg University;* [b] *Interacoustics Research Unit;* [c] *Interacoustics;* [d] *DTU - Technical University of Denmark, Department of Electrical Engineering;* [e] *DTU*

20 O - Spatial and binaural evaluation
Friday, September 13 | Lissabon 2
Chairs: M. Vigeant, S. Weinzierl

14:00 **The CHORDatabase: a twenty-one concert hall spherical microphone and loudspeaker array measurement database**
Matthew Neal and Michelle Vigeant
Penn State University, USA

14:20 **Does the method matter? A review of the main testing methods for the subjective evaluation of room acoustics through listening tests.**
Daniel de la Prida[a], Antonio Pedrero[a], Luis A. Azpicueta-Ruiz[b], María Ángeles Navacerrada[a] and César Díaz[a]
[a] *Technical University of Madrid;* [b] *Universidad Carlos III de Madrid*

14:40 **Loudness in different rooms versus headphone reproduction: Is there a mismatch even after careful equalization?**
Michael Kohnen[a], Florian Denk[b], Josep Llorca-Bofí[a], Michael Vorländer[a] and Birger Kollmeier[b]
[a] *Institute of Technical Acoustics, RWTH Aachen University;* [b] *Medizinische Physik & Cluster of Excellence Hearing4All, Universität Oldenburg*

15:00 **Sound image localization by bone-conducted sound**
Takai Kazuki and Asakura Takumi
Tokyo University of Science

15:20 **Binaural Modeling for Complex Environments**
Jonas Braasch[a] and Jens Blauert[b]
[a] *Rensselaer Polytechnic Institute;* [b] *Ruhr-Universität Bochum*

15:40 **Accurate reproduction of binaural recordings through individual headphone equalization and time domain crosstalk cancellation**
David Hadley Griesinger
David Griesinger Acoustics, Cambridge (USA)

16:00 **Identification of the Room Characteristics Using a Spherical Microphone Array**
Frederico Heloui de Araujo[a], Julio Cesar Boscher Torres[b] and Fernando Augusto de Noronha Castro Pinto[a]
[a] *COPPE/UFRJ, Rio de Janeiro;* [b] *Electrical Eng. Program - Federal University of Rio de Janeiro*

16:20 **The role of median plane reflections in the perception of vertical auditory movement**
Florian Wendt, Matthias Frank and Robert Höldrich
Institut f. Elektr. Musik und Akustik, KUG, Graz

16:40 **Experiencing Room Acoustics Through a Library of Multichannel High-Resolution Room Impulse Responses**
Wieslaw Woszczyk and David Benson
McGill University, Montreal

24 F - Structural intensity - Computation, measurement, application
Friday, September 13 | Amsterdam
Chairs: H.P. Lee, J. Bös

8:40 **Renaissance of the Structural Intensity Analysis**
Heow Pueh Lee and Kian Meng Lim
National University of Singapore

9:00 **Investigation towards an Active Barrier for Structure Borne Sound using Structural Intensity**
Alexander Kokott, Thomas Haase and Hans Peter Monner
DLR e.V., Braunschweig

9:20 **Numerical study on energy transmission for soft materials and metamaterials structures by structural intensity method**
Rong Huang, Ziqian Li, Yiheng Xue and Zishun Liu
Xi'an Jiaotong University

9:40 **Low vibration design for shell structure based on structural intensity distribution**
Takeshi Miyama, Hiroki Nakamura, Toru Kikuchi and Toru Yamazaki
Kanagawa University

10:20 **Structural intensity estimation via displacement and shape measurements of thin shells**
Felipe Pires[a], Stéphane Avril[b], Steve Vanlanduit[a] and Joris Dirckx[a]
[a] *University of Antwerp, Belgium;* [b] *Mines Saint-Étienne, France*

10:40 **Measurement of the structural intensity of curved shell structures by means of 3D laser vibrometry**
Nikolai Kleinfeller[a], Joachim Bös[a] and Tobias Melz[b]
[a] *SAM, TU Darmstadt;* [b] *Fraunhofer Institute for Structural Durability and System Reliability LBF, Darmstadt*

11:00 **Development of energy propagation analysis methods for low- frequency phenomena at BMW**
Peter Groba[a], Johannes Ebert[a], Torsten Stoewer[a], Joachim Bös[b] and Tobias Melz[c]
[a] *BMW Group;* [b] *SAM, TU Darmstadt;* [c] *Fraunhofer Institute for Structural Durability and System Reliability LBF, Darmstadt*

11:20 **Experimental Structure Intensity Analysis of an Airbus A400M fuselage structure using high-resolution vibration measurements**
René Winter, Simon Heyen and Jörn Biedermann
DLR - German Aerospace Center

24 W - General Structure-borne sound and vibration engineering
Friday, September 13 | Amsterdam
Chairs: E. Sarradj, J.-G. Ih

14:00 **Design of lightweight skeletal structures for noise mitigation**
Heow Pueh Lee[a], Sanjay Kumar[b], Thong Hoi Yong[a], Umeyr Kureemum[a] and Xu Song[a]
[a] *National University of Singapore;* [b] *Singapore Inst. of Manufacturing Technology*

14:20 **Structure-borne Noise Reduction of Gearboxes in Maritime Application**
Robin Daniel Seiler
VULKAN Couplings, Germany

14:40 **Application of Dynamic Substructuring and in situ Blocked Force Method for Structure Borne Noise Prediction in Industrial Machinery**
Diego Miguez[a], Oliver Farrell[b], Mark A. Bannister[b], Ryan Arbabi[b], Andy Moorhouse[c] and Andrew Elliott[d]
[a] *University of Salford - Farrat Isolevel;* [b] *Farrat Isolevel;* [c] *University of Salford, Manchester;* [d] *University of Salford*

15:00 **Vibration transmission between two reinforced concrete beams with surface-to-surface contact conditions**
Marios Filippoupolitis[a] and Carl Hopkins[b]
[a] *Institute for Risk and Uncertainty, University of Liverpool;* [b] *Acoustics Research Unit, University of Liverpool*

18 G - Machine learning based approaches to model auditory perception
Friday, September 13 | Amsterdam
Chairs: N. Ma, D. Kolossa

15:20 **Auditory Models Comparison for Horizontal Localization of Concurrent Speakers in Adverse Acoustic Scenarios**
Roberto Barumerli[a], Michele Geronazzo[b], Andrea Almenari[a], Giorgio Maria Di Nunzio[a] and Federico Avanzini[c]
[a] *Department of Information Engineering, University of Padova;* [b] *Dept. of Architecture, Design, and Media Technology, Aalborg University;* [c] *Department of Computer Science, University of Milano*

15:40 **Decoding the neural processing of selective attention to speech**
Tobias Reichenbach
Imperial College London

16:00 **Prediction of Human Listeners' Speech Recognition Performance Based on Automatic Speech Recognition**
Mahdie Karbasi and Dorothea Kolossa
Ruhr University Bochum

16:20 **Modelling of Binaural Speech Intelligibility for Hearing Impaired Listeners Using Intrusive and Non-Intrusive Binaural Speech Intelligibility Models**
Christopher Hauth, Marc René Schädler and Anna Warzybok
University of Oldenburg

08 D - Policy and regulation for noise in urban planning and urban soundscapes
Friday, September 13 | K3
Chairs: G. Brambilla, G. Licitra, C. Asensio

8:40 **Acoustic noise maps - exchange / integration of data within various database systems - problems, needs, new possibilities, interopracy**
Tomasz Malec
KFB Acoustics Sp. z o.o., Wroclaw

9:00 **Noise Low Emission Zone implementation in urban planning: results of monitoring activities in pilot area of LIFE MONZA project**
Rosalba Silvaggio[a], Salvatore Curcuruto[a], Manlio Maggi[a], Antonio Fasanella[b], Giorgio Cattani[a], Alessandro Di Menno Di Bucchianico[a], Alessandra Gaeta[a], Gianluca Leone[a], Enrico Mazzocchi[a], Raffaella Bellomini[c], Sergio Luzzi[c], Francesco Borchi[c], Chiara Bartalucci[d], Monica Carfagni[c], Giulio Arcangeli[d], Nicola Mucci[d], Carlo Casati[e] and Giulia Pessina[e]
[a] *ISPRA, Rome;* [b] *Sapienza University of Rome;* [c] *Vie en.ro.se. Ingegneria;* [d] *University of Florence;* [e] *Monza Municipality*

9:20 **Soundscape Planning as a Tool for Urban Planning**
Moritz Lippold and Bryce Timothy Lawrence
TU Dortmund

9:40 **Noise complaints and its relation to socio-economic factors at city/region scale in England**
Huan Tong and Jian Kang
University College London

10:00 **Introduction to a new approach in urban acoustics**
Alexander Lee[a], Jochen Schaal[b] and Berndt Zeitler[a]
[a] *Hochschule für Technik Stuttgart;* [b] *SoundPLAN, Backnang*

25 B - Non-destructive evaluation (NDT)
Friday, September 13 | K3
Chairs: S. Dos Santos, L. Chehami, M. Lints

10:40 **Defect detection using the identification of resonance frequency by spatial spectral entropy for noncontact acoustic inspection method**
Kazuko Sugimoto[a], Tsuneyoshi Sugimoto[a], Noriyuki Utagawa[b] and Chitose Kuroda[b]
[a] *Toin Univ. of Yokohama;* [b] *SatoKogyo Co. Ltd*

11:00 Identifying objects in a 2D-space utilizing a novel combination of a re-radiation based method and of a difference-image-method
Andreas Sebastian Schmelt, Torben Marhenke and Jens Twiefel
Institut für Dynamik und Schwingungen, Hannover

11:20 Guided Lamb and edge wave excitation by piezoelectric transducers in elastic plates
Mikhail Golub[a], Artem Eremin[a], Maria Wilde[b], Alisa Shpak[a] and Inka Mueller[c]
[a] *Kuban State University, Krasnodar, Russia;* [b] *Saratov State University;* [c] *Ruhr-Universität Bochum*

14:00 Outer Wall Inspection by Noncontact Acoustic Inspection Method using Sound Source Mounted Type UAV
Tsuneyoshi Sugimoto[a], Kazuko Sugimoto[a], Ituski Uechi[a], Noriyuki Utagawa[b] and Chitose Kuroda[b]
[a] *Toin Univ. of Yokohama;* [b] *SatoKogyo Co. Ltd*

14:20 Ultrasonic Spectroscopy to Characterize Flaws, Porosity and Adhesive Bonds
Laszlo Adler
Ohio State University, USA

15:00 The Effect of Water Saturation on the P-wave velocity of Sedimentary Rocks
Sair Kahraman
Hacettepe University, Ankara

15:20 Baseline-Free Repetitive Pump-Probe Experiment for Structural Health Monitoring
Marina Terzi, Lynda Chehami, Emmanuel Moulin, Vladislav Aleshin and Nikolay Smagin
UPHF, CNRS, Univ. Lille, ISEN, Central Lille, UMR-8520, IEMN-DOAE

25 W - General Ultrasound
Friday, September 13 | K3
Chairs: N. Declercq, C. Koch, V. Sánchez Morcillo

15:40 Comparison of Cavitation Effect in Case of Fixed and Free Fibers in an Ultrasound Beaker
Taraka Rama Krishna Pamidi, Örjan Johansson and Torbjörn Löfqvist
Luleå University of Technology

16:00 Time-resolved imaging of GHz acoustic waves in two-dimensional phononic crystals with an arbitrary-frequency technique
Osamu Matsuda, Hiroki Muramoto, Hiroki Nishita, Kentaro Fujita, Motonobu Tomoda and Oliver Wright
Division of Applied Physics, Faculty of Engineering, Hokkaido University

16:20 **Attenuation Mechanisms of High-Frequency Acoustic Waves in Piezoelectric Cubic Crystals**
Farkhad Akhmedzhanov[a], Sirojiddin Mirzaev[b] and Ulugbek Saidvaliev[a]
[a] *IIPLT, Tashkent, Uzbekistan;* [b] *Institute of Ion-plasma and laser technologies, Uzbek Academy of Sciences*

22 B - Sound quality of everyday-life products
Friday, September 13 | K4
Chairs: M. Tsuruta-Hamamura, A. Fiebig

9:20 **Acoustically-friendly products - Sound quality as an emission related product feature**
André Fiebig
Technical University Berlin

9:40 **Sound Quality Improvement of Operation Sounds Emitted by MFPs**
Masao Yamaguchi
Toshiba Tec Corporation, Japan

10:00 **A Design Method for UI-sounds for Electrical Appliances**
Sanae Wake
Doshisha Women's College, Kyoto

21 L - Audio visual interactions for noise perception
Friday, September 13 | K4
Chair: A. Preis

10:40 **Audio/Visual Interaction in the Perception of Sound Source Distance**
Pavel Zahorik
University of Louisville, USA

11:00 **Questions applied in audio and visual environment assessment**
Jan Felcyn[a], Anna Preis[a], Marcin Praszkowski[a] and Małgorzata Wrzosek[b]
[a] *Adam Mickiewicz University, Poznan;* [b] *Szczecin University*

11:20 **The Human Perception based on Memory Recall of the Multi-sensory Stimuli in Outdoor Urban Space**
Ni Putu Amanda Nitidara, Anugrah Sabdono Sudarsono, Ranti Dwi Tassia, Joko Sarwono and Fx Nugroho Soelami
Institut Teknologi Bandung (ITB), Indonesia

08 E - Policy and regulation for noise and vibration in workplaces
- EUROREGIO Session -
Friday, September 13 | K4
Chairs: F. Schelle, Y. Demiral

14:00 **ASR A3.7 "Noise": Technical Rules for the German Ordinance on Workplaces**
Florian Schelle and Jan Selzer
Institute for Occupational Safety and Health (IFA), Germany

14:20 **Prediction techniques to ensure low-noise workplaces and acoustically optimized working areas**
Michael Boehm
DataKustik GmbH, Germany

14:40 **Noise emission data as a prerequisite for Buy Quiet: Challenges related to the European Machinery and Outdoor Noise Directive**
Fabian Heisterkamp
BAuA, Dortmund

15:20 **Admissible Values and Methods of Measurement of Noise, Ultrasonic Noise and Infrasonic Noise at Workplaces in Poland**
Dariusz Pleban
CIOP-PIB, Warsaw

15:40 **Ultrasound Noise Policy and Assessment: Canada Safety Code - 24, a Canadian Perspective**
Lixue Wu
National Research Council Canada

16:00 **Noise exposure of employees in retail trade**
Jan Selzer[a], Florian Schelle[a], Andrea Wolff[a], Frank Rokosch[b] and Anne Gehrke[c]
[a] *Institute for Occupational Safety and Health (IFA), Germany;* [b] *German Social Accident Insurance Institution for trade & distribution ind.(BGHW);* [c] *Institute for Work and Health of the German Social Accident Insurance (IAG)*

16 B - Measurement, modelling and perception of string instruments
Friday, September 13 | K5
Chair: Jean Kergomard

8:40 **Sympathetic vibration in a piano**
Jin Jack Tan, Armin Kohlrausch and Maarten Hornikx
Eindhoven University of Technology

9:00 **Predictive simulation of mechanical behavior from 3D laser scans of violin plates**
Mirco Pezzoli, Riccardo Roberto De Lucia, Fabio Antonacci and Augusto Sarti
Politecnico di Milano

9:20 **Measurement and Modelling of the Japanese koto: Problems and Solutions**
Kimi Coaldrake
The University of Adelaide

9:40 **Study of Ivory Alternatives for Koto Bridges: Correlation between Sensory Evaluation and Amplitude Modulation of Fundamental Spectrum**
Shuichi Sakamoto, Shunsuke Watanabe, Taku Watanabe, Yuki Sato, Shuma Ito, Ryota Kominami and Yuki Akiba
Niigata University, Japan

14 C - Radiated Noise of Ships and Offshore Structures
Friday, September 13 | K5
Chairs: A. Homm, V.F. Humphrey

10:00 **Innovative solutions to reduce the transfer of structure borne noise in couplings**
Lothar Kurtze
Geislinger GmbH, Austria

10:20 **Application of the Energy based Finite-Element-Method to determine the sound emission of vibrating ship structures in the High Frequency Domain**
Henning Lohmann[a], Boris Dilba[a], Olgierd Zaleski[a] and Otto von Estorff[b]
[a] *Novicos GmbH, Hamburg;* [b] *Hamburg University of Technology*

10:40 **Analysis Methods and Design Measures for the Reduction of Noise and Vibration Induced by Marine Propellers**
Christoph Kratzsch, Paul Mertes, Julian Kimmerl, Vladimir Krasilnikov, Kourosh Koushan, Mario Felli, Moustafa Abdel-Maksoud and Nils Reichstein
SCHOTTEL GmbH, Germany

11:00 **Numerical modelling of the correction factor for predicting the monopole source level from shallow water noise measurements on vessels**
Victor F Humphrey and Yin Cen
ISVR, University of Southampton

11:20 **Measurements of Underwater Noise from Pile Driving in Southwest Coast of Korea**
Dong-Gyun Han, Daehyeok Lee and Jee Woong Choi
Hanyang University, Republic of Korea

14:00 **Shipping noise propagation at the shallow sea**
Eugeniusz Kozaczka and Grażyna Grelowska
Gdansk University of Technology

14:20 **Noise mitigation for the construction of offshore wind turbines - Overview of Noise Mitigation Systems for complying with noise limits.**
Michael A. Bellmann, Robert Kühler, Rainer Matuschek, Patrick Remmers, Siegfried Gündert, Michael Müller and Jan Schuckenbrock
itap GmbH, Oldenburg

14:40 **Uncertain Parameters of the Propagation Path in 3D Pile Driving Noise Modelling**
Jonas von Pein, Johannes Seidel, Elin Klages, Stephan Lippert and Otto von Estorff
Hamburg University of Technology

15:00 **Evaluation of range standards for underwater radiated noise of ship's in beam aspect.**
Hans Hasenpflug[a], Anton Homm[b], Layton Gilroy[c] and Stefan Schäl[b]
[a] *Defence Materiel Organisation (DMO), Netherlands;* [b] *Wehrtechnische Dienststelle für Schiffe und Marinewaffen (WTD71), Germany;* [c] *Defence Research and Development Canada (DRDC)*

15 D - Boundary and finite element methods in acoustics and vibration 2
Friday, September 13 | K6
Chairs: H. Waubke, W. Kreuzer

8:40 **Model Order Reduction with Krylov Subspaces of exterior Acoustic BEM Systems**
Dionysios Panagiotopoulos, Elke Deckers and Wim Desmet
KU Leuven/Member of DMMS Lab, Flanders Make

9:00 **Evaluating acoustic properties based on sound energy for interior problems**
Caglar Guerbuez and Steffen Marburg
Technical University of Munich (TUM)

9:20 **Relation between Convergence Tolerance for Iterative Solvers and Calculation Results in Rooms Using BEM**
Yosuke Yasuda, Kota Saito and Hidehisa Sekine
Kanagawa University

9:40 **Integration of FEM shell elements as a "boundary condition" in BEM calculations using different solution methods**
Ralf Burgschweiger[a], Ingo Schäfer[b] and Martin Ochmann[a]
[a] *Beuth Hochschule für Technik Berlin;* [b] *Bundeswehr Technical Center for Ships and Naval Weapons (WTD71, GF640)*

10:00 **Numerical investigation of acoustic radiation damping in sandwich structures**
Suhaib Koji Baydoun and Steffen Marburg
Technical University of Munich (TUM)

10:40 **Moving sources and the 2.5D Helmholtz Boundary Element Method**
Christian Kasess and Holger Waubke
Acoustics Research Institute, Austrian Academy of Sciences, Vienna

11:00 **Simulation of vibrations from railway tunnels**
Holger Waubke, Wolfgang Kreuzer, Tomasz Hrycak and Sebastian Schmutzhard
Acoustics Research Institute, Austrian Academy of Sciences, Vienna

11:20 **Fundamental solutions in modeling of vibrations radiated from tunnels with 2.5D - BEM**
Sebastian Schmutzhard, Tomasz Hrycak, Wolfgang Kreuzer and Holger Waubke
Acoustics Research Institute, Austrian Academy of Sciences, Vienna

14:00 **A Domain Decomposition Method with Fast Convergence for the Helmholtz Equation**
Denis Duhamel
École des Ponts Paris Tech

14:20 **On the impact of the shape of the artificial boundary in exterior Helmholtz problems**
Nick Wulbusch[a], Reinhild Roden[b], Alexey Chernov[a], Matthias Blau[b] and Andrea Moiola[c]
[a] *Universität Oldenburg;* [b] *Institut für Hörtechnik und Audiologie, Jade Hochschule, Oldenburg, Germany;* [c] *University of Pavia*

14:40 **BEM Simulation of tube acoustics using thin elements**
Wolfgang Kreuzer and Veronika Weber
Acoustics Research Institute, Austrian Academy of Sciences, Vienna

15:20 **Flexible multi-level fast multipole BEM with Direct Solver for Industrial Acoustic Problems**
Yue Li[a], Onur Atak[a] and Wim Desmet[b]
[a] *Siemens Industry Software NV, Leuven, Belgium;* [b] *KU Leuven/Member of DMMS Lab, Flanders Make*

15:40 **FEM-BEM applications in vibro-acoustics using GypsiLab**
Matthieu Aussal[a], François Alouges[a], Marc Bacry[a] and Gilles Serre[b]
[a] *Centre de Mathématique Appliquées, École polytechnique, Palaiseau;* [b] *Naval Group Research (F)*

19 A - Application of Psychoacoustics in Noise Evaluation
Friday, September 13 | K7/8
Chairs: H. Fastl, S. Kuwano

8:40 **Automated live natural soundscapes creator for office sound masking**
Jonas Braasch, Jeffrey Parkman Carter and Alana Deloach
Rensselaer Polytechnic Institute, USA

9:00 **Limits of Mixing Background Sounds to Foreground Sound Samples in Psychoacoustic Laboratory Experiments on Noise Annoyance**
Eduardo Pelizzari and Armin Taghipour
Empa, Swiss Federal Laboratories for Materials Science and Technology

9:20 **Annoyance modeling of construction noise using acoustical features, noise sensitivity and health condition**
Jae Kwan Lee, Seo Il Chang, Soo Il Lee and Jae Woong Jang
University of Seoul

9:40 Loudness of ramped and damped sounds that are temporally shifted across ears
Josef Schlittenlacher, Robbie Zhao and Brian C. J. Moore
Auditory Perception Group, Dep. of Psychology, Cambridge (UK)

10:00 Annoyance penalty of amplitude-modulated sound
Valtteri Hongisto and Petra Karoliina Virjonen
Turku University of Applied Sciences

10:20 Annoyance of impulsive sounds - a psychoacoustic experiment involving synthetic sounds
Ville Rajala and Valtteri Hongisto
Turku University of Applied Sciences

10:40 Practical Experience with Psychoacoustics in Automotive Engineering
Uwe Letens[a], Arne Oetjen[b], David Goecke[c] and David Maiberger[d]
[a] *Daimler AG, Germany;* [b] *Carl von Ossietzky University, Acoustics Group, Oldenburg, Germany;* [c] *M Plan GmbH;* [d] *now at Vektor Informatik*

11:00 Subjective and electrodermal responses to annoying vehicle sounds: Role of task load and noise sensitivity
Wolfgang Ellermeier[a], Florian Kattner[a], Ewald Klippenstein[a], Michael Kreis[a] and Catherine Marquis-Favre[b]
[a] *TU Darmstadt, Germany;* [b] *Univ Lyon, ENTPE, LGCB*

11:20 Subjective and Objective Assessments of Noise Barriers in Terms of the Loudness Level
Marcin Piotr Nowak[a] and Piotr Kokowski[b]
[a] *AECOM Polska Ltd.; Institute of Acoustics, Adam Mickiewicz University in Poznan;* [b] *Institute of Acoustics, Adam Mickiewicz University in Poznan; Akustix Ltd.*

14:00 Improving defect detection in wind turbine blades with psychoacoustic means and prediction models
Bernhard U. Seeber and Gaetano Andreisek
Audio Information Processing, Technical University of Munich

14:20 Activity Disturbances by a Step Change in Aircraft Noise Exposure around Hanoi Noi Bai International Airport
Takashi Yano[a], Makoto Morinaga[b], Shigenori Yokoshima[c], Thulan Nguyen[d] and Thao Linh Nguyen[e]
[a] *Graduate school of Science and Technolody, Kumamoto University, Japan;* [b] *DFEIA, Tokyo;* [c] *Kanagawa Environmental Research Center;* [d] *Shimane University;* [e] *Sound Traffic Environment Inc.*

14:40 Improvement of Copy Machine Noise
Takeo Hashimoto and Shigeko Hatano
Seikei University, Tokyo

15:00 Applications of Psychoacoustics in Dental Drill Noise Evaluation
Tomomi Yamada, Sonoko Kuwano and Mikako Hayashi
Osaka University

15:40 Annoyance of Noise in the Infrasound Range; Study Design and Acoustic Presentation
Detlef Krahé[a], Sarah Leona Benz[b], Christian Eulitz[c], Stephan Grossarth[b], Ulrich Möhler[c], Uwe Müller[d] and Dirk Schreckenberg[b]
[a] *Bergische Universität Wuppertal;* [b] *ZEUS GmbH, Hagen;* [c] *Möhler + Partner Ingenieure AG;* [d] *DLR - German Aerospace Center*

16:00 Annoyance of Noise in the Infrasound Range: Measuring Psychological Reactions on variations of Infrasound in a Laboratory Setting
Sarah Leona Benz[a], Stephan Grossarth[a], Christian Eulitz[b], Detlef Krahé[c], Ulrich Möhler[b], Uwe Müller[d] and Dirk Schreckenberg[a]
[a] *ZEUS GmbH, Hagen;* [b] *Möhler + Partner Ingenieure AG;* [c] *Bergische Universität Wuppertal;* [d] *DLR - German Aerospace Center*

16:20 Physiological effects of short-term infrasound immissions
Uwe Müller[a], Stefan Schmitt[a], Riccardo De Gioannis[a], Gernot Plath[a], Iris Rieger[a], Christian Eulitz[b], Detlef Krahé[c], Ulrich Möhler[b], Dirk Schreckenberg[d] and Eva-Maria Elmenhorst[a]
[a] *DLR - German Aerospace Center;* [b] *Möhler + Partner Ingenieure AG;* [c] *Bergische Universität Wuppertal;* [d] *ZEUS GmbH, Hagen*

17 W - General Physical acoustics

Friday, September 13 | K9
Chairs: M. Heckl, X. Wang

8:40 Extensions of the Born Approximation for Acoustic Radiation Force and Torque to Inhomogeneous Objects and Progressive Spherical Waves
Thomas S. Jerome and Mark F. Hamilton
The University of Texas at Austin

9:00 Impact of roughness on shock wave reflection phenomena
Thomas Lechat[a], Sébastien Ollivier[b], Didier Dragna[a] and Maria Karzova[c]
[a] *LMFA, École Centrale de Lyon;* [b] *LMFA, Université Lyon 1;* [c] *Moscow State University (Russia) and Ecole Centrale de Lyon (France)*

9:20 Analytical and computational modeling of viscothermal acoustic damping in perforated microstructures
Vahid Naderyan, Richard Raspet, Craig Hickey and Mohammad Mohammadi
National Center for Physical Acoustics, University of Mississippi, USA

10:00 On some properties of magnetoacoustic waves in acoustically active non-adiabatic plasma
Dmitrii Zavershinskii[a], Nonna Molevich[a] and Igor Zavershinskii[b]
[a] *Samara National Research University, P.N. Lebedev Physical Institute RAS;* [b] *Samara National Research University*

10:20 Statistical Characteristics of gas metal arc welding (GMAW) sound
Sipei Zhao[a], Xiaojun Qiu[a], Ian Burnett[a], Malcolm Rigby[b] and Anthony Lele[b]
[a] *University of Technology Sydney;* [b] *Sound Intuition Ltd. Pty., Melbourne*

10:40 Predicting the noise level during sawing of carbonate rocks from the P-wave velocity
Sair Kahraman[a], M. Suat Delibalta[b] and Ramazan Comakli[b]
[a] *Hacettepe University, Ankara;* [b] *Nigde Omer Halisdemir Univ., Turkey*

02 H - Machine learning for audio signal processing
Friday, September 13 | K9
Chairs: M. Cobos, W. Kellermann

14:00 Source Localization in Reverberant Rooms using Deep Learning and Microphone Arrays
Hadrien Pujol, Éric Bavu and Alexandre Garcia
CNAM - Laboratoire de Mécanique des Structures et des Systèmes Couplés, Paris

14:20 Sound Quality Improvement for Speech Acquisition Based on Deep Learning and Harmonic Reconstruction with Laser Microphone
Shoji Ueda, Kenta Iwai, Takahiro Fukumori and Takanobu Nishiura
Ritsumeikan University, Kusatsu

14:40 Performance Analysis of Audio Event Classification Using Deep Features under Adverse Acoustic Conditions
Irene Martin-Morato[a], Maximo Cobos[a], Francesc Ferri[a] and Javier Naranjo-Alcázar[b]
[a] *Universitat de Valencia;* [b] *Fusió d'arts Technology S.L., Spain*

15:20 Joint Separation, Dereverberation and Classification of multiple Sources Using Multichannel Variational Autoencoder with Auxiliary Classifier
Shota Inoue[a], Hirokazu Kameoka[b], Li Li[a] and Shoji Makino[a]
[a] *University of Tsukuba;* [b] *NTT Communication Science Laboratories, Japan*

15:40 A Neural Network Approach to Broadband Beamforming
Yugo Kuno[a], Bruno Masiero[a] and Nilesh Madhu[b]
[a] *University of Campinas, Brazil;* [d] *Ghent University - imec, Belgium*

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Lunch Guide for ICA 2019

General information

Lunch meals are included for ICA. Participants are offered a daily lunch with vegetarian and non-vegetarian option and further alternatives. Warm meals will be served in room K1 (first floor) and at some stations on the ground floor foyer. Further snacks will be available at the refreshment stations inside the building. These stations can be found at Europa Foyer (ground floor and 1st floor) and Brüssel Foyer.

Allergies and religious aspects

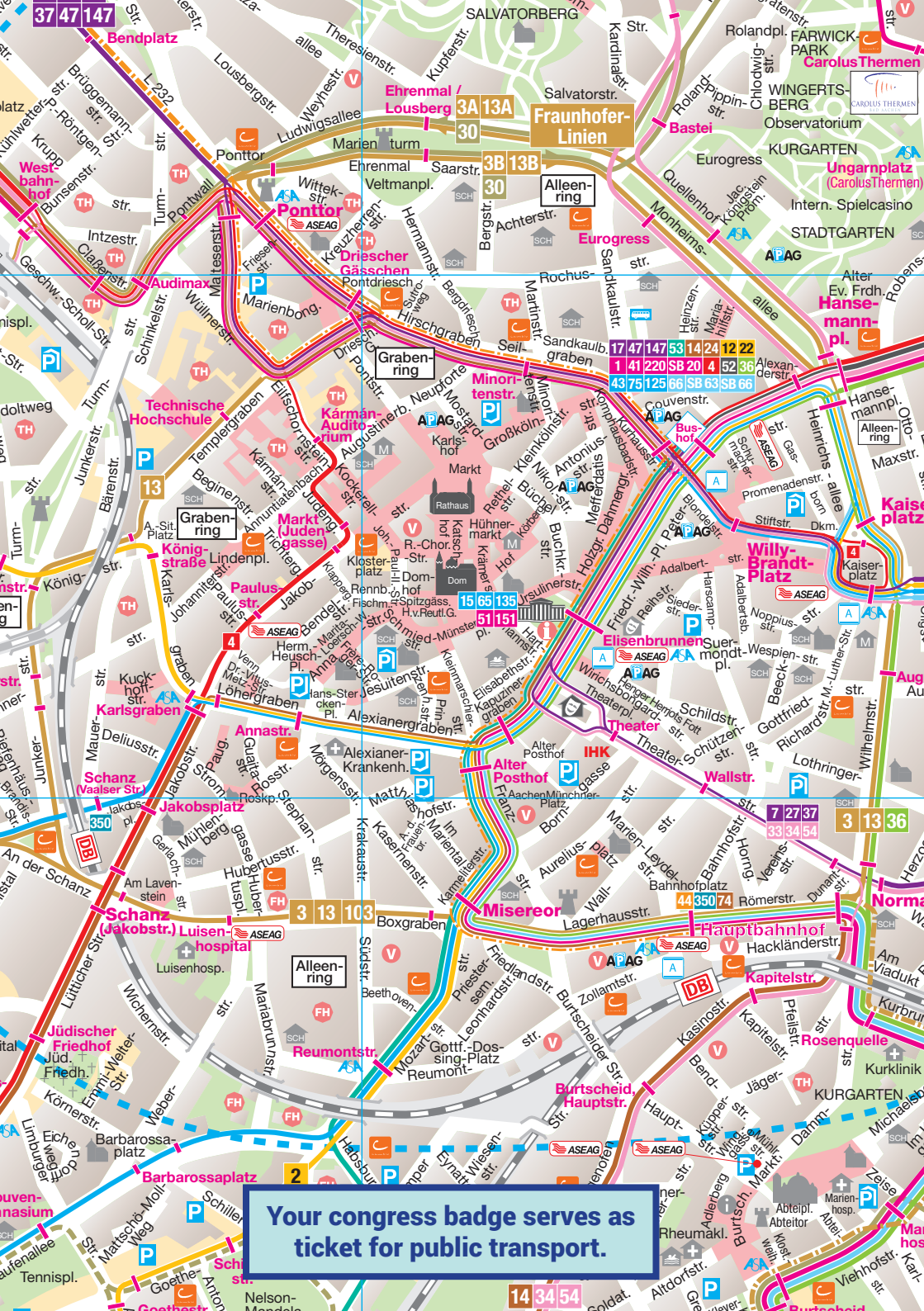
Aspects concerning allergies and religion have been considered as carefully as possible. The dishes at ICA contain mainly meat which is not pork. Exceptions are Currywurst and Bockwurst (sausages which are served to Pea Stew) and Quiche Lorraine.
Chili con Carne and Goulash are prepared with meat from cattle. Meals will be labelled (in English and German). If you are unsure about ingredients, please ask the personnel of our Caterer (Lemonpie Eventcatering).
Please understand that we will not be able to serve kosher and halal meals. We hope that the vegetarian dishes will serve as an alternative.

Conference Menu - Overview

	Warm Meal A	Warm Meal B (vegetarian)	Further snacks
Monday 9 Sep	Chili con Carne	Potato Soup with herbs	Ciabatta with variations of tomatoes, rocket, mozzarella, basil pesto, olive oil
Tuesday 10 Sep	a - Quiche Lorraine (ham, onions, sour cream) b - Quiche with Salmon and Spinach	Quiche with Broccoli and Goat Cheese	Small bread rolls with variations of turkey, cream cheese, cress, pine nuts
Wednesday 11 Sep	Pea Stew with Sausage and Baguette (sausage contains pork)	Pea Stew with Baguette	Tortilla wraps filled with meat or cheese and vegetables
Thursday 12 Sep	Goulash Soup and Baguette	Carrot and Ginger Soup and Baguette	Focaccia variations with turkey or tuna or cream cheese
Friday 13 Sep	Curried Sausage and Baguette (German specialty, sausage contains pork)	Sweet Potato Soup and Baguette	Baguette canapés with roast beef or Brie cheese

Floor Plans

FIRST FLOOR EUROGRESS
Boardroom
K9
K7/8
K6
K5
K4
Europa
Catering
Poster
Catering
K3
Brüssel
Catering
K1
K2
GROUND FLOOR EUROGRESS
Europa
Catering
Catering
Exhibition
Wardrobe
Brüssel
Registration
Tagungs-Treff
Media Check-in
Main entrance
Berlin 1
Berlin 2
Berlin 3
Royal Spa
Courtyard
Amsterdam
Luxem-burg
Lissabon
Lobby
Garden
Madrid
Gourmet-restaurant
Brasserie
Terrazza Fontana
Entrance conference rooms
Reception
Entrance Quellenhof
Bar
Monheimsallee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