Acoustics Australia (2018) 46:159–180
https://doi.org/10.1007/s40857-018-0141-z

Acoustics Australia

Acoustics Australia is published by the Australian Acoustical Society
(A.B.N. 28 000 712 658)
ISSN 0814-6039

All articles and technical notes (but not Acoustics Forum and Letters) are sent for peer review before acceptance. Acoustics Australia is abstracted and indexed in all major data bases and has an Impact Factor of 0.735 (2017).

Acoustics Australia
The papers and technical notes are available from the journal website www.springer.com/engineering/journal/40857. All members of the Australian Acoustical Society have free access to the papers and technical notes but must log in via the member area of the AAS website and follow the link to the journal.

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Vol. 46, No. 2 August 2018

ACOUSTICS NEWS AND REGULAR ITEMS

GENERAL SUBMISSIONS

FROM THE PRESIDENT

This week events in the office sound a very loud bell for me. The background to this story is the need to write and keep detailed records and procedures for seldom used activities.

When I set up a public web server environment, I also installed an email server. Part of the email server configuration required details of security certificates. These certificates are the same as for a web server and are required whenever you see https: in your URL for web access. Everything was working satisfactorily, until some years later, when the certificates were upgraded/renewed and the details changed.

My documented procedures correctly identified how to install and update the web server, but did not mention the email server. That is where problems started to occur and it took significant resources to determine the root cause. Who to blame – unfortunately me. So I had a strong talk to myself and immediately updated the procedures.

How does this experience relate to you our readers. In your professional life you undertake all manner of investigations, experimentation with setups and equipment, etc. How often do you undertake to fully document those processes for future use?

As you know from personal experience, trying to re-establish a procedure that may not have been used for some time, takes significant effort and time. In many cases, some of the equipment is no longer available or has been updated etc; the previous staff who developed the procedure is no longer available, etc. Accurate documentation of both the procedure and the underlying principles can provide a wealth of knowledge to springboard into new projects. Documentation of procedures does not take long, but its future benefits far outweigh the initial costs to produce.

Registrations are now open for Acoustics 2018 in Adelaide. Don't forget to book it in your diary for 6-9 November.

Terrance McMinn, President, AAS

FROM THE EDITOR

At this time of the year, we receive the report from the publishers on the previous calendar year. This report compiles a wide range of statistics on the journal. A high measure of quality is critical to be able to attract good quality manuscripts. One common measure is the impact factor and Acoustics Australia continues to improve with an increase from 0.61 to 0.74. In the assessment for the "Top 20" journals in the area of Acoustics, Acoustics Australia is #27. For comparison, the Journal Acoustical Society of America is #16. Six of the top ten acoustics journals have a focus on ultrasonics with Ultrasound in Obstetrics and Gynecology being #1.

Over the three years we have been with Springer, the total number of submissions has increased from 103 to 134, and the acceptance rate has settled at around 28%. Australia, India and China are the top 3 author nationalities for manuscripts accepted for publication in Acoustics Australia in 2017. Almost half of the over 12,000 full text requests are from Asia with the remainder split evenly between Europe and the Americas.

I would like to give a special thank you to the reviewers who voluntarily put time and effort into reviewing manuscripts. It is a particularly challenging task when so many manuscripts are from authors with English as a second language. The primary task of the reviewer is to consider if the content is technically correct and provides new information. Some reviewers kindly also help the authors to improve their English expression to improve the understanding of the article content. It is through their careful efforts that the quality of the journal rests. Although a 72% reject rate is disappointing, it is a reflection that the reviewers are doing what is expected of them.

It is a worthy achievement that an article from Acoustics Australia has been selected and promoted in the Springer Nature "Change the World program". The paper by Christine Erbe on "Review of Underwater and In-Air Sounds Emitted by Australian and Antarctic Marine Mammals" has been accepted as one of only 29 papers in the wide "Chemistry, Engineering, Physics, Materials" category. The author and Acoustics Australia can both now feature the logo shown here. It is particularly noteworthy that it is an Australian author that achieved this recognition. Thank you to Christine Erbe for this achievement.

This issue comprises 9 articles on a range of topics. In the coming years we would like to have focussed or special topic issues. We will welcome anyone who would like to take on such a task and you would have the full editorial backing to assist to bring it to fruition.

Marion Burgess, Editor in Chief

ACOUSTICS AUSTRALIA 46(2), 2018 ABSTRACTS

The full papers for these abstracts can be found in the online version of Acoustics Australia.

Members of the Australian Acoustical Society should access via the member login of the AAS website. Access for all others is via http://link.springer.com/journal/40857

GENERAL SUBMISSIONS

ORIGINAL PAPERS

ASSESSMENT OF ACOUSTICAL INDICATORS IN MULTI-DOMED HISTORIC STRUCTURES BY NON-EXPONENTIAL ENERGY DECAY ANALYSIS

Zühre Sü Gül[1], Mehmet Çalı kan[2], Ay e Tavukçuo lu[3], Ning Xiang[4]

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[2] *Department of Mechanical Engineering, Middle East Technical University, Ankara, Turkey*

[3] *Department of Architecture, Middle East Technical University, Ankara, Turkey*

[4] *Graduate Program in Architectural Acoustics, School of Architecture, Rensselaer Polytechnic Institute, Troy, USA*

The key concern of this study is to discuss the reliable acoustical metrics for analyzing particular sound fields within monumental multi-domed sacred spaces with an emphasis on multiple sound energy decay formation. The potential of such structures in featuring non-exponential sound energy decay characteristics necessitates new formulation of sound decay indicators in understanding of their sound fields. The early and late energy decay components within non-exponential sound energy decays can have a unique contribution to the interior acoustic quality. These acoustical features can also provide the functional and spiritual acoustical needs of monumental sacred spaces. Süleymaniye Mosque and Hagia Sophia, two major monuments of Istanbul World Heritage Site, are examined in this regard. Field measurements are the main method of data collection. Over collected room impulse responses, relevant acoustical predictors including decay rates and decay times are computed by applying Bayesian decay parameter estimation. Analysis results disclose double or triple decay formations in both structures. Authors argue that, the detection of multiple sound energy decays in analyzed structures sets out a new vision for room acoustics studies of sacred spaces and for multi-domed monuments. Thus, implementation of new metrics, namely multiple slope decay parameters to replace classical room acoustics indicators, is recommended and discussed in light of the outcomes of this study.

UNDERWATER SOUND SOURCE LOCALIZATION BY EMD-BASED MAXIMUM LIKELIHOOD METHOD

B Marxim Rahula Bharathi, A R Mohanty

Mechanical Engineering Department, Indian Institute of Technology, Kharagpur, India

The underwater object localization is important in defense, underwater biological and environmental applications. Localization using a passive sonar system is a challenging task. It is more challenging when the source and receivers are in the reverberant environment. Time delay estimation (TDE)-based localization is a well-known technique to localize source for last few decades. In this work, empirical mode decomposition maximum likelihood (EMD ML TDE) method is used to estimate the time delay in a reverberant environment. The sound source location is estimated by intersecting spherical surfaces from the time delay. The experimental results prove that EMD ML time delay estimation method is effective to localize a sound source in a reverberant environment.

COMPARISON OF THE EFFECTS ON MEMORY TASKS OF BABBLE AND BROADBAND NOISE

Brett R. C. Molesworth[1], Marion Burgess[2], Chloe Wilcock[1]

[1] *School of Aviation, University of New South Wales, Sydney, Australia*

[2] *School of Engineering and Information Technology, University of New South Wales, Canberra, Australia*

The comparative effects on both working memory and recognition memory of the same A-weighted noise levels of background noise, typically of that present in many transportation work areas, were investigated (55 and 65 dBA). One noise was a babble, multi-talker incomprehensible speech and representative of the many work areas dealing with administrative tasks. The other noise was broadband and similar to services and machinery noise. Forty participants, half non-native English speakers, were asked to complete three different working memory tests (linguistics, grammatical reasoning and mathematics) and one recognition memory test (cued recall) in the presence of the two types of noise at the two different levels. Broadband noise at 65 dBA was found to adversely affect recall by as much as 15%. The native language advantage was only evident with the linguistic working memory task. The findings highlight the interplay between type of noise, level of noise, demand of task, and language background of the person completing the task, and also the limitations of the use of dBA alone for assessment of acceptability of a workspace.

COMPARISON OF CEPSTRAL PEAK PROMINENCE MEASURES USING THE ADSV, SPEECHTOOL AND VOICESAUCE ACOUSTIC ANALYSIS PROGRAMS IN VOCALLY HEALTHY FEMALE SPEAKERS

Catherine Madill[1], Duong Duy Nguyen[1], Clare Eastwood[2], Robert Heard[2], Samantha Warhurst[2]

[1] *Voice Research Laboratory, The University of Sydney, Sydney, Australia*

[2] *The University of Sydney, Sydney, Australia*

This study examined the correlation of, and agreement between, cepstral peak prominence (CPP) measures obtained from three acoustic analysis programs: Analysis of Dysphonia

in Speech and Voice (ADSV), SpeechTool, and VoiceSauce. Voice data recorded from sustained /a/ vowel and connected speech of two cohorts of vocally healthy female participants were analyzed using program default settings to measure smoothed CPP (CPPS) in ADSV, CPPS and CPP in SpeechTool, and CPP in VoiceSauce. Intraclass correlation coefficients, linear regression, and Bland-Altman plots were used for testing the correlation and agreement between these programs. There was good correlation between ADSV and SpeechTool with respect to vowel CPPS in both cohorts. Connected speech CPPS from these two programs showed moderate correlation in cohort 1 and good correlation in cohort 2. CPP values obtained from VoiceSauce were highly correlated with those from SpeechTool in both tasks. Bland-Altman plots showed that there were differences between programs in CPPS and CPP values. While CPPS and CPP values from these programs were correlated, they did not show absolute agreement. This implied possible different thresholds of detecting dysphonic severity across different acoustic analysis programs.

AN ENHANCED SHARPNESS ON ACOUSTIC FOCUS VIA ARTIFICIAL ITERATIVE PHASE CONJUGATION PROCESSING

Ting Li, Sheng Li, Song Liu

State Key Laboratory of Structural Analysis for Industrial Equipment, School of Naval Architecture, Faculty of Vehicle Engineering and Mechanics, Dalian University of Technology, Dalian City, People's Republic of China

For a low-frequency source in a homogenous medium, when the source is focused by phase conjugation (also referred to as the time reversal in the time domain), the focal spot is large because of the half-wavelength limit. In this paper, to reduce the focal spot size, artificial iterative phase-conjugated processing is proposed based on passive phase conjugation to focus a point-like source. As AIPCP operates in iteration mode using a computer, the iteration loops of each transducer are calculated independently, and then, AIPCP is achieved by summing the iteration outputs of all transducers together. Numerical simulations and experiments on an audible sound field are employed to illustrate that AIPCP generates a narrower focal spot than passive phase conjugation. Further analyses considered the theoretical change in focal spot size with the iteration number using Fraunhofer far-field approximation, and the result shows that the focal spot size decreases with increase in the iteration number. This finding is predicted in the near field and validated in the far field by simulations and experiments. Moreover, the half-wavelength limit is overcome at a distance from the sound source equal to the wavelength.

TECHNICAL NOTES

MATECHO: AN OPEN-SOURCE TOOL FOR PROCESSING FISHERIES ACOUSTICS DATA

Yannick Perrot[1], Patrice Brehmer[1,2], Jérémie Habasque1, Gildas Roudaut[1], Nolwenn Behagle[1], Abdoulaye Sarré[2], Anne Lebourges-Dhaussy[1]

[1] UMR 195 Lemar (Laboratoire des sciences de l'environnement marin CNRS, UBO-IUEM, IRD, Ifremer), Institut de Recherche pour le Développement (IRD), Plouzané, France

[2] Centre de Recherches Océanographiques de Dakar Thiaroye (CRODT), Pôle de Recherches de Hann, Institut Sénégalais de Recherches Agricoles (ISRA), Dakar, Senegal

Matecho is an automated processing method to extract information and perform echo-integration and fish shoal extraction from various scientific echo-sounder sources providing digital acoustic data on fisheries and aquatic ecosystem. The open-source initiative helps foster collaboration and technological transfer. Matecho supports various formats, such as the international standard format for the exchange of fisheries acoustics raw and edited data. The procedure allows the semiautomatic cleaning of echogram data and the application of automatic data filters, i.e., transient noise, attenuated signal and impulsive noise removal and background noise reduction. Echo-integration processing is executed for each depth layer and integrates their characteristics per elementary sampling unit. Sound scattered layers are automatically detected by segmentation from the echo-integrated echogram, and shoals are extracted according to an iterative process of aggregation of filtered echogram echoes that allows, in both cases, the calculation of the ad hoc parameters describing morphological, spatial location and acoustic characteristics of sound scattered layers and shoals. Matecho is open-source software for researchers and provides end users with a user-friendly, free executable program.

TURBOJET TEST CELL AND NOISE IMPACT ASSESSMENT IN THE VICINITY OF ROMANIAN RESEARCH AND DEVELOPMENT INSTITUTE FOR GAS TURBINES COMOTI

Marius Deaconu[1], Grigore Cican[2]

[1] National Research and Development Institute for Gas Turbines COMOTI, Bucharest, Romania

[2] "Elie Carafoli" Department of Aerospace Sciences, "POLITEHNICA" University of Bucharest, Bucharest, Romania

In this paper, the noise impact of a turbojet testing cell on the adjacent community is investigated. There are scenarios in which the noise from two different turbo engines is analysed. For the noise impact study, acoustic measurements were taken in the test cell to obtain the transmission loss of the three silencers of the test cell. To allow testing of high-power turbojets as Viper or R-11F-300 Tumansky, the test cell was restored and relocated to minimize the noise impact on the surrounding area. The study presents the affected buildings and the number of inhabitants exposed to noise that is assessed according to a German VBEB method based on noise level at façade of the buildings. The study presents the calculus methodologies of the acoustic propagation according ISO 9613-2 on the surrounding

area and the noise limits according to the national legislation. To reduce the conflict areas, a technical solution for the intake silencer is proposed.

ANALYSIS AND CONTROL FOR THE INTAKE NOISE OF A VEHICLE

Liang Yang[1,2,3], Zhigang Chu[1,2,3], Dong Zhao[2], Yansong He[1,2], Xi Chen[2]

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[3] State Key Laboratory of Vehicle NVH and Safety Technology, Changan Automobile Company Limited, Chongqing, China

The sound quality of a vehicle equipped with an inline four-cylinder engine is poor at around 2250 rpm with characteristic of prominent pure tone. The experimental results indicate that the second (2nd)-order intake noise has a peak at this engine speed. To understand the mechanism and solve this problem, the finite element model of the entire intake system is established to calculate the acoustic mode. Meanwhile, the 1D computational fluid dynamics (CFD) model integrating the intake/exhaust system with the engine is constructed to predict the intake noise. The modal analysis results demonstrate that the natural frequency of the intake system is close to the frequency of the 2nd-order periodic pressure pulsation noise at around 2250 rpm. The resonance of the air column is the main cause of the above-mentioned problem. The results of 1D-CFD simulation agree well with the experiment. Based on the analysis results and considering the constrains of engine cabin space, three kinds of control measures are proposed, which include changing the length of intake dirty pipe, changing the length of the clean pipe and installing the Helmholtz resonator. The simulation results are as follows: (1) By increasing the length of intake dirty pipe appropriately, the 2nd-order noise is reduced at low engine speed, while increased at high engine speed. (2) The length of the intake clean pipe has obvious influence on the acoustic mode of the intake system, but little influence on the total noise, and the 2nd-order noise attenuation is not obvious. (3) Helmholtz resonator can attenuate the total noise and the 2nd-order noise in most of engine speed range. Therefore, the Helmholtz resonator is used for the solution. The acoustical characteristics of the intake noise and the vehicle sound quality are improved.

NOISE PREDICTION IN INDUSTRIAL WORKROOMS USING REGRESSION MODELING METHODS BASED ON THE DOMINANT FREQUENCY CUTOFF POINT

Rostam Golmohammadi[1], Vahideh Abolhasannejad[2], Ali Reza Soltanian[3], Mohsen Aliabadi[4], Hassan Khotanlou[5]

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Noise pollution is one of the major problems in industrial environments. The physiological response to the noise in industrial environments depends on the characteristics of the noise and environment. This study aimed to develop an empirical model for predicting the level of noise in closed industrial spaces using regression modeling based on the dominant frequency cutoff point. After identifying and determining the effective input variables in the prediction of noise level, the relevant data were collected from 56 industrial workrooms and the model was developed using multiple regression technique. The two models were best fitted to estimate the noise level for workrooms with a dominant frequency of less or equal to and more than 250 Hz ($R2 = 0.86$, $R2 = 0.85$, respectively). Based on the results of this study, it is less costly and requires less equipment for noise evaluation and monitoring by the mentioned models during the design, implementation, and operation of industrial environments. These experimental models can be used as suitable measures for screening closed industrial spaces and ranking them in terms of the amount of noise pollution.

AUSTRALIAN ACOUSTICAL SOCIETY ENQUIRIES

NATIONAL MATTERS

* Notification of change of address
* Payment of annual subscription

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For 2017/18 Financial Year (Inc. GST):

Fellow and Member	$160
Graduates	$122 - $160
Associate and Subscriber	$122
Retired and Maternity	$48
Students and retired fellows	No Charge

DIVISIONAL MATTERS

Enquiries regarding membership and sustaining membership should be directed to the appropriate State Division Secretary

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AAS NEWS

From the General Secretary

The Society is in a stable position midway through 2018.

Membership has increased slightly, with a significant reduction in resignations (6 in 2018) and members being lapsed for non-payment. Total membership currently stands at 664 which includes 23 Sustaining members.

Total Members NSW	293
Total Members QLD	109
Total Members SA	39
Total Members VIC	149
Total Members WA	74

However, there is continuing growth in membership applications with 22 new applications received since January 2018. While this is fewer than 36 at this time last year, relatively few members have been lapsed in 2017-2018.

Membership subscription invoices were sent out on 24/04/2018 via an automated process from the membership database. At the end of the financial year, around 60% of members had paid, more than half of whom paid by credit card via the secure Stripe payment gateway. Some members report not receiving their subscription invoice, which is being investigated. While I have received many enquiry calls and emails about membership of the Society this year, I strongly feel that the Society's membership would increase further and more rapidly if the advantages of membership were more widely promoted.

The search for a comprehensive membership management solution with website integration and multi-device accessibility is ongoing with some good contenders emerging.

Richard Booker
General Secretary

NEWS FROM THE DIVISIONS

SA Division

The South Australian Division have been busy preparing for the annual conference of the Australian Acoustical Society, Acoustics 2018, which will be held in Adelaide from 6th to 9th of November this year.

With the theme of "Hear To Listen", Acoustics 2018 in Adelaide will include plenary talks by Professor Tuomas Virtanen, of Tampere University of Technology, Finland, and Sir Harold Marshall, of Marshall Day Acoustics. Tuomas has a strong interest in the detection and classification of sound in the environment, while Sir Harold is internationally recognised for his contribution to concert hall design.

Other major streams will address Airport/Road/Railway noise, Standards and Guidelines, including those from EPAs, Underwater Acoustics/Marine Bioacoustics, Wind Farm noise, and Vibration.

This year we have introduced the option of submitting either a full paper or extended abstract. The extended abstract is no more than two pages in length, and the opportunity to attend and present, without having to prepare a full paper. If you're interested in submitting an extended abstract but have not yet submitted an abstract then please contact us asap via the website as we might be able to squeeze you in.

Acoustics 2018 will be held at the Adelaide Convention Centre. The Adelaide Convention Centre is located on North Terrace in the heart of the city centre. In close proximity to the entertainment, cultural and sport precinct, the Centre is a short walk to international and boutique hotels and accommodation (ranging from 3 - 5 stars). Public transport, the Adelaide Railway Station and a taxi rank are on its doorstep. The Adelaide International Airport is just 7 kilometres from the Centre, making it a quick taxi ride.

In addition to the formal conference activities, the University of Adelaide plan to run a free short course providing an introduction to using the finite element analysis software ANSYS® to solve vibro-acoustic problems. More details on the workshop and how to sign up are provided on the website.

If you are looking for any further information please go to www.acoustics2018.com

Jon Cooper

QLD Division

The Qld Division were fortunate enough to host two presentations in recent months. Craig McPherson, of JASCO Applied Sciences, presented in May on the recently released Great Barrier Reef Underwater Noise Guidelines: Discussion and Options Paper. The Paper explores international and domestic policy contexts and examples, provides options for how the Great Barrier Reef Marine Park Authority might progress towards development and implementation of underwater noise policy and guidelines, and provides technical guidance for underwater noise impact assessments with a focus for the acoustic characteristic of Great Barrier Reef fauna. The talk was well received and provided a fascinating insight into the day to day life of an underwater acoustician.

Dr Paul Roe, of the Queensland University of Technology, presented in June about Monitoring Biodiversity by Collecting Big Sound Data. This project involves the implementation of an acoustic sensor network comprising 400 listening stations across regional Australia. The acoustic sensors will record continuously and collect approximately two petabytes of sound data over five years. The talk spanned the design and installation of acoustic monitoring stations, as well as the challenges faced when processing and storing this information; which

will provide a useful picture of the changing soundscape.

Craig O'Sullivan

WA Division

The South Australian Division have been busy preparing for the In recent months the WA Division have held two workshops regarding the potential for creating a 'Noise Map' for Perth. If this initiative proceeds, it will be a valuable education tool for the community, but will also assist in short-cutting the screening process for development applications and will allow the extent of population exposed to environmental noise to be quantified. The workshop attendees have examined the noise maps created in other states and have made initial contact with various government agencies regarding their potential involvement.

Any WA members who wish to contribute to this useful initiative should attend the next workshop meeting. The date, time, and location of the future meetings will be e-mailed to members in due course.

Ben Farrell

NSW Division

The NSW Division has again been fortunate to continue to attract a number of great speakers for our Technical Talks. In April, Dr Ulf Sandberg came straight off the plane from Sweden to give an update on all things related to road traffic noise. Ulf is a very frequent traveller to our shores and is always a source of new information. See video at: https://www.youtube.com/watch?v=kcQa_m2bbQA.

In May, Prof. Catherine Best, Director of Research for MARCS Institute, Western Sydney University gave an interesting background to the sources of the modern Australian accent and described findings on how Australians' lifetime experience and 'ear-tuning' to the Australian accent affects their perception of vowels and words spoken by people from other English accent regions. It was valuable having someone from an area that we do not usually interact with presenting a topic, and the NSW Division is looking to improve links to these other areas of acoustics.

In June, Dr Manuj Yadav, School of Architecture, Design and Planning, at the University of Sydney, gave a very well attended talk on open-plan office designs. Yes, unfortunately it appears they are here to stay!

In July, we have Prof. Con Doolan from UNSW scheduled to give an overview of recent experimental and computational research results concerning noise production mechanisms on wind turbines and some novel ideas for its control. For the first time, the NSW Division will be providing a live feed for members and other States to view: https://www.youtube.com/watch?v=bjIgNiYSIgw.

Finally, it's that time of year when the NSW Division also recognises the best final year university students. First off was Zain Khan from UNSW who attained the highest mark in MECH9325 Fundamentals of Acoustics and Noise.

Jeff Parnell congratulating Zain Khan from UNSW.

Jeff Parnell
nsw-chair@acoustics.asn.au

ACOUSTICS NEWS

AAAC Update

This year the Association for Australasian Acoustical Consultants has been running for forty years. In our anniversary year we reflect on how far the industry has come. Alongside the AAS, the AAAC, its members and our hard-working voluntary committee members over the years have moved acoustic consultancy from a virtually unknown discipline which our colleagues in planning, construction, development and engineering didn't understand, to a regulated and highly respected field which improves the lives of millions across Australia and New Zealand.

Founded in 1978, we now represent 65 member firms, who employ approximately 400 consultants, reflecting a $90m size industry.

As a not-for-profit peak body our goal is to raise the standards of acoustic consultancy and educate industry professionals and the public on the role of good acoustics and its impact on the design and planning in the built environment.

In June, we celebrated those who have helped build the reputation of the industry with an Honorary Member Award Ceremony at the Kirribilli Club in Sydney. Congratulations go the following people who were each awarded with an Honorary Membership of the AAAC in our fortieth anniversary year for their significant contribution to the industry:

Ron Carr (posthumous), Athol Day, David Eden, Douglas Growcott, Graeme Harding, Richard Heggie, Alan Herring, Jim Madden, Barry Murray, Renzo Tonin and Roger Wilkinson. Awards were presented by Peter Knowland, our inaugural Honorary Member.

(L to R): Peter Knowland, David Eden, Jim Madden, Athol Day, Renzo Tonin, Richard Heggie, Alan Herring, Douglas Growcott, Roger Wilkinson, Barry Murray and Ron Carr (posthumous)

Our AGM will be held on Saturday 10 November, in Adelaide.

For regular updates to AAAC guidelines, activity and interesting industry information follow our LinkedIn Page.

Matthew Stead
Chairperson, AAAC
matthew.stead@resonate-consultants.com

Talking Acoustics

Talking Acoustics is a podcast looking into the art and science of acoustics and features interviews with people who spend their lives working in this diverse field. Guests talk about how and why they got interested acoustics, what they have learned along the way and where they think acoustics is headed.

It is hosted by Matthew Ottley from Sydney, Australia. Past episodes have featured Peter Knowland, Renzo Tonin, Gillian Lee, Glenn Leembruggen and Trevor Gore. Recent episodes are interviews with Christopher Allen (NASA), John Meyer (Meyer sound) and Marcia Isakson (President Acoustical Society America). It is available free on iTunes (search podcasts in iTunes store for 'Talking Acoustics') or streaming at www.talkingacoustics.com

Standards Australia changes to draft download process

Standards Australia is changing the way public comment drafts are accessed. Users will be able to download all drafts open for public comment directly from the Public Comment portal. Drafts will also remain available from the SAI Global Store. As part of this change, Standards Australia has updated the Conditions of Use for Applications to reflect that members of the public access drafts via the Hub. Stay tuned for more updates.

Standards Australia AS 1055 update

What is hopefully the last final draft of the 2018 update for that very useful Australian Standard AS 1055 on description and measurement of environmental noise is in process. The committee hopes that the new version will be released before the end of 2018.

Cabe formalises New Zealand chapter

The Chartered Association of Building Engineers (CABE) has formally signed the application to establish the New Zealand Chapter. With the Association increasing its membership year on year through international development, CABE's fully functional New Zealand Chapter is testament to the growing role the association has with building engineering across the globe.

Commenting on the formalisation, Gavin Dunn of the CABE said; "With New Zealand undergoing a construction boom, there is no better time for an internationally recognised professional body such as the CABE to work with industry partners in the establishment of a chapter covering this thriving country."

More information: www.cbuilde.com

Headphones and hearing loss in children

In a large study of children's hearing in the Netherlands, around one in seven was found to have some hearing loss.

The researchers behind the study believe this could be associated with headphone use.

According to doctors, minor hearing loss at a young age could become an even bigger problem later in life.

More information: https://jamanetwork.com/journals/jamaotolaryngology/article-abstract/2684510

A new EV taxi introduced in Finland - accepts only singing as payment

Singalong Shuttle is the world's first taxi that is paid by singing. The emission-free rides to special events in the city are operated on electric cars. Singalong Shuttle is provided by clean-energy company Fortum, who wants to engage its customers and society to join the change for a cleaner world. The company offers a wide range of clean energy solutions and encourages its customers to live a more sustainable life.

More information:
www.fortum.com/singalongshuttle

Spectris and Macquarie Capital in joint venture for EMS Brüel & Kjær

Macquarie Capital will acquire 50% of Spectris' environmental monitoring business EMS Brüel & Kjær ('EMS B&K'). Macquarie Capital is part of Macquarie Group headquartered in Sydney and includes the largest Australian investment bank. EMS B&K provides environmental monitoring services and will now benefit from Macquarie Capital's infrastructure advisor and investor expertise. Commenting on the transaction, John O'Higgins, Chief Executive of Spectris plc, said: "We are delighted to partner with Macquarie Capital. This joint venture creates a significant opportunity for us to collaborate on the industrial internet of things." Daniel Wong, Global Co-Head of the Energy and Infrastructure group within Macquarie Capital, said: "This investment is an integral part of Macquarie Capital's focus on technology applying to infrastructure (InfraTech). This is recognition that a number of technologies can now bring significant benefit in the construction, operation and maintenance of infrastructure assets. Macquarie looks to leverage its presence in the infrastructure sector and knowledge of technology to take a leading position in this space and we see this new venture with EMS B&K as a first step into this fast-growing market."

The Environmental Noise and Vibration Monitoring Services including air-quality and prediction will be managed by "EMS BK" group. https://www.emsbk.com/

Brüel & Kjaer (Sound & Vibration) will remain your trusted partner for all other sound & vibrations needs, such as Sound Level Meters, Analysers, Application Software, High-end S&V Solutions, Services and Support. www.bksv.com

Brüel & Kjær Sound & Vibration and HBM To Merge

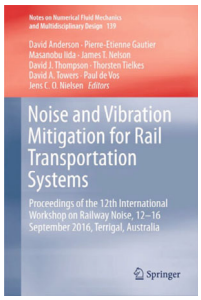
The companies Hottinger Baldwin Messtechnik GmbH (HBM) and Brüel & Kjær Sound and Vibration A/S (BKSV), both owned by UK-based Spectris plc, are merging their businesses, effective January 1st, 2019.

Both BKSV and HBM are global market leaders in their respective disciplines. BKSV´s strength is in sound, noise and vibration, while HBM focuses on reliability, durability, propulsion efficiency, electrical properties, industrial process control and weighing.

The merger will build on the best from each company and their respective capabilities. This will also be reflected in the name of the new company – HBK (Hottinger, Brüel & Kjær).

By combining the strengths of two market leaders within their fields, HBK will have the critical mass and competencies to actively drive the digital transformation of our customers' industries, and will be able to deliver even greater value to our customers around the world. All existing agreements, points of contact, procedures, partnerships etc. will continue as is.

More information: Bruel & Kjaer Australia auinfo@bksv.com or +61 2 9889 8888



Noise and Vibration Mitigation for Rail Transportation Systems

The latest developments in rail noise and vibration are captured in the newly released Noise and Vibration Mitigation for Rail Transportation Systems, published by Springer. This book includes peer reviewed papers from the 12th International Workshop on Railway Noise and covers topics including high-speed rail and aerodynamic noise; interior noise; wheel squeal; policy, regulation and perception; predictions, measurements and modelling; rail roughness, corrugation and grinding; squeal noise; structure-borne noise; ground-borne noise and resilient trackforms; and wheel-rail noise. The book features state-of-the-art reviews on wheel squeal and rail noise policy and regulation from noted experts in these fields, and at 780 pages with papers from authors spanning 16 countries, this book is an authoritative source of the latest information in this growing field. The book is available for purchase from Springer - https://www.springer.com/gp/book/9783319734101.

WORKPLACE NOISE & VIBRATION

The USA National Academy of Engineering and INCE-USA has held a workshop on Reducing Employee Noise Exposure in Manufacturing – Best Practices, Innovative Techniques and the Workplace of the Future.

This covered the availability of effective low-cost techniques for the reduction of noise in industry, design of low-noise machines for industrial use, techniques for reduction of noise through changes in industrial processes, the future manufacturing environment and its implications for new noise goals in manufacturing facilities. Lower noise goals will lead to the need to design low-noise machinery and equipment as well as low noise manufacturing processes. The workshop report is now on-line at:

https://www.inceusa.org/publications/technology-for-a-quieter-america/#reducing-exposure

In June 2018 the international Audio Engineering Society held a conference on Music Induced Hearing Disorders in Chicargo. This covered sound level management, guidelines for music venues, hearing protectors and hearing aids suitable for musicians, hidden hearing loss, sound intolerance, otoacoustic emission testing and music effects on brain health. Abstracts of the papers presented, including those from Australian researchers, can be viewed at: http://www.aes.org/conferences/2018/hearing/abstracts.cfm

In August 2017, the French government issued a decree (2017-1244) on the prevention of risks related to noise and amplified sounds, and this will come into effect on 1 October 2018. The provisions apply to indoor and outdoor public places that accommodate activities involving the broadcast of amplified sound that exceed an LAeq,8h of 80 dB(A). The maximum sound level limit has been reduced from 105 to 102 dB(A) LAeq over 15 minutes, and no more than 118 dB(C) LCeq over 15 minutes. For activities specifically for children up to the age of 6, sound levels should not exceed 94 dB(A) LAeq over 15 minutes and 104 dB(C) LCeq over 15 minutes. See (in French) https://www.legifrance.gouv.fr/affichTexte.do?cidTexte=JORFTEXT000035388481&categorieLien=id

NIOSH in USA has published a new information bulletin on Preventing Hearing Loss Caused by Chemical (Ototoxicity) and Noise Exposure. See:

https://www.cdc.gov/niosh/docs/2018-124/pdfs/2018-124.pdf?id=10.26616/NIOSHPUB2018124

NIOSH researchers have also recently published a paper on Cardiovascular conditions, hearing difficulty, and occupational noise exposure within US industries and occupations. This showed that 25% of current workers had a history of occupational noise exposure (14% exposed in the last year), 12% had hearing difficulty, 24% had hypertension, 28% had elevated cholesterol; 58%, 14%, and 9% of these cases can be attributed to occupational noise exposure, respectively. See: https://onlinelibrary.wiley.com/doi/abs/10.1002/ajim.22833

Other US researchers from Harvard and California have published on Self-reported Hearing Difficulty and Risk of Accidental Injury in US Adults. They found that hearing difficulty is significantly associated with accidental injury, especially injury related to work or leisure. Increased awareness about hearing difficulty and its proper screening and management may assist in decreasing accidental injury. See: https://www.ncbi.nlm.nih.gov/pubmed/29566111

An international collaboration of researchers has published the Use of the kurtosis statistic in an evaluation of the effects of noise and solvent exposures on the hearing thresholds of workers: An exploratory study. Results showed an interaction between noise exposure and solvents for the hearing threshold at 6000 Hz. This effect was observed only when the cumulative noise exposure level was adjusted by the kurtosis metric. See: https://asa.scitation.org/doi/10.1121/1.5028368

A Royal Opera House Viola player has successfully claimed for Acoustic Shock from trumpet noise. It is the first time in the UK that acoustic shock has been recognized as compensatable and the first time the Music Industry's obligations to musicians' hearing has been explored in Court.. See: https://www.theguardian.com/culture/2018/mar/28/viola-player-wins-royal-opera-house-case-for-hearing-damage

and for the full legal judgement report: https://www.judiciary.gov.uk/wp-content/uploads/2018/03/goldscheider-v-roh-judgmentL.pdf

Following research, the Canadian IRSST has produced an online video, illustrating its four recommendations for the ideal conditions for the installation and use of reversing (back-up) alarms. These recommendations will especially interest safety officers and users at all companies that have this kind of safety device. See:

http://www.irsst.qc.ca/en/headlines/id/661/recommendations-for-optimum-use-of-backup-alarms/utm_source

The Canadian Centre for Occupational Health & Safety has new a podcast interview with an Occupational Health Nurse experienced in Hand-arm Vibration Syndrome: http://traffic.libsyn.com/ccohs/episode_140_HandArmVibration_Interview_final.mp3

This is a good summary for workers and managers (apart from the unqualified recommendation to use anti-vibration gloves).

WorkSafe WA has a new factsheet for workers using portable power tools that includes advice on managing vibration risks: https://www.commerce.wa.gov.au/sites/default/files/atoms/files/portable_power_tools_2018.pdf

An appeal by a company over a WA mining truck driver's compensation for back injury involving whole-body vibration and jarring was dismissed in May 2018. This case is interesting both for accepting that the job significantly contributed to back injury and for the preference of the judges for a neurosurgeon's evidence over that of the company's Occupational Health Physician. See: https://jade.io/article/582790

Pam Gunn has contributed these Workplace Noise and Vibration items.

New Products

RION VM-56 Tri-axial Ground Borne Vibration Meter

Simultaneous PPV & VDV – Wave Recording & 1/3 octave – Attended, Unattended, Live-to-web – Reliable, familiar and very easy to use.

The VM-56 is capable of simultaneously calculating DIN 45669-1 and ISO 8041 defined values, along with those found in other national and international vibration measurement standards. It is capable of simultaneous measurement across a range of parameters including PPV, PVS , VDV, Dominant Frequency, Crest Factor, KBFmax, KBFT, MTVV, Acc, DISP. It provides 100ms store option, as well as configurable calculation interval of 1s to 24h with triggering capabilities. Waveform recording and 1/3 octave band analysis function available as optional add-on configuration programs. All storage provided by an on-board SD card.

Measurements provided are best suited for Transportation (Road, Highway and Rail), Construction (Piling, Vehicle, Excavation and Demolition) and Mining (including Blasting).

The on-board user interface follows the the easy to navigate and familiar RION NL-42/52 menu style. This rugged system is suitable for use in attended, unattended and live-to-web measurement scenarios (Modem with Noise Cloud integration coming soon!). Optional DIN-plate available. Free excel macro available.

More information: https://acousticresearch.com.au/

Future Conferences

Acoustics 2018 Adelaide

Acoustics 2018, themed "Hear to Listen", will be held at the Adelaide Convention Centre in the heart of Adelaide city centre, from 6 9 November 2018. Plenary talks by Professor Tuomas Virtanen, of Tampere University of Technology, Finland, and Sir Harold Marshall, of Marshall Day Acoustics. Tuomas has a strong interest in the detection and classification of sound in the environment, while Sir Harold is internationally recognised for his contribution to concert hall design

Other major streams are Airport, Road and Railway noise; Standards and Guidelines; Underwater Acoustics/Marine Bioacoustics; Wind Farm noise and Vibration.

Either a full paper or extended abstract can be submitted. An extended abstract of no more than two pages in length may be presented, without having to prepare a full paper.

In addition to the conference activities, the University of Adelaide will run a free short course on the finite element analysis software ANSYS®.

Key dates:

Paper or extended abstract (non-peer reviewed):
15 September 2018

More information: www.acoustics2018.com

INTER-NOISE 2018

The 47th INTER-NOISE conference, themed Impact of Noise Control Engineering will be held in Chicago, Illinois, USA on 26-29 August 2018. The Congress is organized by the Institute of Noise Control Engineering of the USA (INCE-USA) and the International Institute of Noise Control Engineering (I-INCE). The congress includes more than one hundred technical sessions covering a wide range of issues facing the noise control industry. There will be a large, broad program of sessions on a variety of acoustics and noise topics, with particular emphasis on implementing noise control technology.

More information: www.internoise2018.org

ISMA2018 and USD

ISMA2018 Noise and Vibration Engineering Conference will be held in Leuven, Belgium 17-19 September 2018. The ISMA conference is organised in conjunction with the USD conference on Uncertainty in Structural Dynamics. A single registration will grant access to both the ISMA and the USD conference.

The ISMA conference program will include keynote lectures, tutorials and invited and contributed papers in specialised areas of noise and vibration engineering and structural dynamics. The focus of the conference is on experimental and numerical methods, with special attention to recent applications in vehicle and civil engineering.

The USD conference topics range over analysis techniques, implementation strategies and applications of non-deterministic numerical methods in structural dynamics, covering probabilistic as well as non-probabilistic approaches.

Key dates:

17-19 September: ISMA2018 - USD2018 conference.

20-21 September: Parallel courses: ISMA43 and ISAAC29.

More information: www.isma-isaac.be

ICSV26

The International Institute of Acoustics and Vibration (IIAV) and the Canadian Acoustical Association (CAA) are pleased to announce the 26th International Congress on Sound and Vibration (ICSV26) to be held in Montréal 7–11 July 2019.

The congress will feature a broad range of high-level technical papers from across the world: distinguished plenary lectures will present recent developments in important topics of sound and vibration and include discussions about future trends.

Montréal is an exciting, vibrating and welcoming destination. It's a city where delegates can enjoy a rich diversity of culture, museums, art galleries, night-life, gastronomy, shopping and sport, not to mention the International Jazz Festival right before the conference. Cosmopolitan Montréal offers something to suit every delegate!

More information: http://www.icsv26.org

Wespac 2018

The 13th Western Pacific Conference on Acoustics will be held at CSIR-NPL, New Delhi, India from 11–15 November 2018. Distinguished plenary lecturers will present recent developments in important topics of acoustics, sound, noise, ultrasonics and vibration and include discussions about future trends. The technical program will include plenary, distinguished, invited, contributed and poster papers covering all aspects of acoustics.

Key dates:

Paper submission 1 September

Early bird registration 1 September

More information: www.wespac2018.org.in

WTN 2019

The eighth International Conference on Wind Turbine Noise will be held from 12-14 June 2019 in Lisbon, Portugal. The organisers are now calling for papers. The conference theme is Consolidating our Knowledge on Wind Turbine Noise. Papers are particularly sought on: Propagation, Annoyance and other effects on people, Predicting background noise level, Amplitude Modulation, and Modelling Source Noise.

Key dates:

Abstracts: 12 January 2019.

More information:

www.windturbinenoise.eu/content/conferences/8-wind-turbine-noise-2019/

ICA 2019

The German Acoustical Society (Deutsche Gesellschaft für Akustik, DEGA) is pleased to invite you to the 23rd International Congress on Acoustics in the beautiful and historical city of Aachen from 9 to 13 September 2019.

The technical program will include plenary, distinguished, invited, contributed, and poster papers covering all aspects of acoustics. There will be an extensive technical exposition highlighting the latest advances in acoustical products.

The congress will integrate the conference EUROREGIO of the European Acoustics Association, EAA, with invited papers focusing on European projects, educational programs, standards, and legislation.

Key dates:

Abstract Submission: Feb 1, 2019

Paper Submission: Jun 1, 2019

Early Bird Registration: Jun 1, 2019

More information: http://www.ica2019.org/

Sustaining Members

The following are Sustaining Members of the Australian Acoustical Society.
Full contact details are available from http://www.acoustics.asn.au/sql/sustaining.php

3M AUSTRALIA
www.3m.com

ACOUSTIC RESEARCH LABORATORIES
www.acousticresearch.com.au

ACOUSTICA
www.acoustica.com.au

ACRAN
www.acran.com.au

ACU-VIB ELECTRONICS
www.acu-vib.com.au

ADAMSSON ENGINEERING
www.adamsson.com.au

AERISON PTY LTD
www.aerison.com

ARMSTRONG WORLD INDUSTRIES
www.armstrongceilings.com.au

ASSOCIATION OF AUSTRALIAN ACOUSTICAL CONSULTANTS
www.aaac.org.au

BORAL PLASTERBOARD
www.boral.com.au/plasterboard

BRUEL & KJAER AUSTRALIA
www.bksv.com.au

C-MAC INDUSTRIES (AUST) PTY LTD
www.cmac.com.au

CSR BRADFORD INSULATION
www.bradfordinsulation.com.au

DYNAMIC COMPOSITE TECHNOLOGIES
www.dctech.com.au

EMBELTON
www.vibrationisolation.com.au

FLETCHER INSULATION PTY LTD
www.insulation.com.au

KNAUF AMF AUSTRALIA PTY. LTD.
www.knaufamf.com.au

MASON MERCER AUSTRALIA
www.masonmercer.com.au

OFFICE OF ENVIRONMENT AND HERITAGE, DEPT OF PREMIER & CABINET NSW
www.environment.nsw.gov.au

PYROTEK NOISE CONTROL
www.pyroteknc.com

REGUPOL (AUSTRALIA) PTY LTD
www.regupol.com.au

SOUNDBLOCK® SOLUTIONS
www.soundblock.com.au

THE P.A. PEOPLE PTY LTD
www.papeople.com.au

VIPAC ENGINEERS AND SCIENTISTS
www.vipac.com.au

Diary

2018

26 - 29 August, Chicago, USA
INTER-NOISE 2018
www.internoise2018.org

17-19 September, Leuven, Belgium
ISMA2018 Noise and Vibration Engineering and USD2018 Uncertainty in Structural Dynamics
http://www.isma-isaac.be

6-9 November, Adelaide, Australia
Acoustics 2018 Adelaide
www.acoustics2018.com

11 - 15 November, New Delhi, India
WESPAC 2018
www.wespac2018.org.in

2019

12-14 June, Lisbon, Portugal
WTN2019
www.windturbinenoise.eu

16 - 19 June, Madrid, Spain
INTER-NOISE 2019
www.i-ince.org

7 - 11 July, Montreal, Canada
26th International Congress on Sound and Vibration (ICSV26)
www.icsv26.org

8 - 13 September, Aachen, Germany
23rd International Congress on Acoustics (ICA 2019)
www.ica2019.org

13 - 17 September, Detmold, Germany
International Symposium on Musical Acoustics (ISMA 2019)
www.isma2019.de

15 - 17 September, Amsterdam, Netherlands
International Symposium on Room Acoustics (ISRA 2019)
www.isra2019.eu

2020

15-18 June, Stockholm, Sweden
13th ICBEN Congress on Noise as a Public Health Problem
icben2020@akademikonferens.se

2021

6-10 December, Sydney, Australia
Acoustics 21, Sydney
Joint meeting Acoustical Society Australia, Wespac, Australian Acoustical Society, Pacific Rim Underwater Acoustics
Sydney2021@acoustics.asn.au

Meeting dates can change so please ensure you check the conference website: http://www.icacommission.org/calendar.html