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E-NEWSLETTER

ACOUSTICAL SOCIETY OF INDIA

Volume 28(1-4) January - December 2018

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President's Message



Prof. (Dr.) V. R. Singh
President, ASI

It is happy to report the highlights of the development of recent activities of ASI in my message for ASI News Letter, January-December, 2018.

National Symposium on Acoustics, NSA-2017, was held at Aligarh Muslim University, Aligarh, on October 28-30, 2017, under the leadership of Dr Yasser Rafat of Mechanical Engineering Department. There were several invited talks and keynotes from eminent researchers, in addition to many oral paper presentations on the latest topics in the field of acoustics. Most of the ASI members participated in the Symposium.

Our mega event, Western Pacific Acoustics Conference (WESPAC-2018), was organized successfully, first time in India, jointly by ASI, CSIR-NPL and WESPAC on November 11 to 15, 2018 at CSIR-NPL, New Delhi, India, in collaboration with Ultrasonics Society of

India, ICA (International Congress on Acoustics) and ASA (Acoustical Society of America). There were 626 papers, eight plenary addresses and 53 distinguished lectures/invited talks, in different fields of acoustics, in 44 structural sessions, from all over the world. Twenty-nine prominent industries and companies working in Acoustics have also supported the event by exhibiting their products. Also, at the time of WESPAC 2018, a special Tutorial on 'Noise Control Measures for Diesel Generators' was organised by ASI on 11th Nov 2018, through eight special lectures by eminent scientists.

As informed earlier, ASI has been assigned by ICA to hold events under the banner "India and International Year of Sound - 2020", with UNESCO. The message has been sent to all the members of ASI to organise "Noise Awareness Programs" in their cities. Under this theme, an 'International Noise Pollution Awareness Day' was organised jointly by ASI and CSIR-NPL at New Delhi on 26th April 2017 which was very successful. There were specialists' talks from eminent speakers from CPCB, NEERI-Nagpur, NPL, ASI, IIT-Delhi, etc. The audience included senior officials and about 500 school children. Dr D. K. Aswal, Director, NPL gave a special talk for children about noise and its awareness.

One of the main activities of ASI is that ASI publishes regularly Journal of Acoustical Society of India (JASI). The Editor-in-Chief and his editorial team are thanked for keeping the publication of JASI in the stipulated time frame. Many special issues on special topics have been published by inviting Guest Editors in different areas of acoustics. I also organised two special issues, one on Physical Acoustics and Ultrasonics and other on Biomedical Acoustics.

ASI is very active in organising National and International Conferences, Symposia and Workshops, from time to time, and plans for newer and newer activities in future. More emphasis is required for the use of acoustics as an important tool in the industry and health care.

I am glad to present here the ASI News Letter January-December, 2018. Sincere thanks are due to EC and all other members for their active contributions in the ASI activities.

I may like to inform here that during NSA-2018 which was a part of WESPAC 2018, at NPL, New Delhi, we had our EC Meeting as well as AGM. There was also prize distribution for various ASI awards

I wish you all a very Happy and Prosperous New Year 2019!

Prof. (Dr.) V. R. Singh
President, ASI

Conference News

NSA 2017 ALIGARH

NSA-2017 was conducted by the Department of Mechanical Engineering, ZHCET, Aligarh Muslim University (AMU), Aligarh during 28-30 October, 2017. Dr. Yasser Rafat (Lifetime ASI member) was the symposium Convener of NSA-2017. The Chief Guest was Dr. D K Aswal, Director CSIR-NPL, New Delhi and the Guest of Honor was the Vice Chancellor of AMU, Prof. Tariq Mansoor. The symposium witnessed good response with participation from different parts from India. NSA-2017 was supported financially by TEQIP-II, DST, ICMR and AMU funds. Overall, more than 125 abstracts were received from various IITs, CSIR and DRDO Labs, Central and State Universities, Industries and other institutes. From among the abstracts around 100 papers were selected for technical presentation. Selected papers from the technical presentation were included in the proceedings which will be published by Springer in the form of a book. Apart from technical sessions, there were two ASI memorial lectures and seven invited lectures.



Inauguration function of the NSA-2017 at AMU, Aligarh

WORLD HEARING DAY 2018 AND INTERNATIONAL NOISE AWARENESS DAY 2018

"Hear the Future"

"Make Listening Safe: A CSIR-NPL initiative to promote safe listening practices."

CSIR-National Physical Laboratory (CSIR-NPL) and Acoustical Society of India (ASI) jointly celebrated World Hearing Day (WHD-2018) and International Noise Awareness Day (INAD-2018), both events on 4th May 2018 (Friday) to raise awareness on how to prevent deafness and hearing loss and promote ear and hearing care across the world; and to encourage people to do something about bothersome noise where the work, live, and play.

World Hearing Day is held on 3 March (but, CSIR-NPL celebrated it on 4th May) each year to raise awareness on how to prevent deafness and hearing loss and promote ear and hearing care across the world. With the theme "Hear the future", World Hearing Day 2018 drew attention to the anticipated increase in the number of people with hearing loss around the world in the coming decades. It was focussed on preventive strategies to stem the rise and outline steps to ensure access to the necessary rehabilitation services and communication tools and products for people with hearing loss.

International Noise Awareness Day is a global campaign, founded in 1996 by the Center of Hearing and Communication (CHC), aiming to raise awareness of noise on the welfare and health of people. Noise affects people in many ways, but only deafness and annoyance receive actual interest from the general public. Worldwide, People are called upon to take part via various actions on this occasion: open days on hearing from acousticians, lectures in public health departments, universities and schools, panels of experts, noise level measuring actions, and readings. The day is commemorated on the last Wednesday of April of every year (but, CSIR-NPL celebrated it also on 4th May).

So, it is time to address the threat that noise poses to hearing, health, learning and behaviour. CSIR-National Physical Laboratory (CSIR-NPL) plays a vital role in arresting the spread of environmental noise pollution in the Country. Today's discerning consumers equate quiet, smoother-running products with quality. For over 50 years, customers have looked to CSIR-NPL as their silent partner in resolving complex noise control issues. Advanced analytical procedures and equipment are used to diagnose and resolve the toughest noise issues in the buildings, customer products and industrial products fields. The acoustical products play a dominant role in any noise control programme. Besides playing the role of the custodian of primary standards in the country, NPL has got advanced facilities to evaluate the indigenously developed acoustical materials and material combinations as per relevant national/International standards. This year, CSIR-NPL is spearheading a special effort to inform the public of the necessity of creating a quiet home, school and recreational environment.

Continuous exposure to noise above 85 decibels can be harmful to hearing, and documented research has found that noise does not have to be that loud to lead to physiological changes in blood pressure, sleep, digestion and other stress-related disorders. Studies exist documenting the harmful effects of noise on children's learning and behaviour. It is time that we take responsibility to quiet our surroundings and create a healthy environment for our children and us.

Some 110 crores teenagers and young adults are at risk of hearing loss due to the unsafe use of personal audio devices, including smartphones, and exposure to damaging levels of sound at noisy entertainment venues such as nightclubs, bars and sporting events, according to the World Health Organization. Hearing loss has potentially devastating consequences for physical and mental health, education and employment.

Data from studies in the middle- and high - income countries analysed by WHO indicate that among teenagers and young adults aged 12-35 years, nearly 50% are exposed to unsafe levels of sound from the use of personal audio devices, and around 40% are exposed to potentially damaging levels of sound at entertainment venues. Unsafe levels of sounds can be, for example, exposure to more than 85 decibels (dB) for eight hours or 100 dB for 15 minutes.

To mark World Hearing Day, CSIR-NPL is launching the "Make Listening Safe." initiative to draw attention to the danger of unsafe listening and promote safer practices. Worldwide, 36 crores people today have moderate to profound hearing loss due to various causes, such as noise, generic conditions, complications at birth, certain infectious diseases, chronic ear infections, the use of particular drugs, and ageing.

The workshop aimed to understand and spread awareness on the effect of noise pollution on human behaviours. The workshop was attended by more than 500 participants including Scientist CSIR-NPL and various Ph.D. students and students from Kendriya Vidyalaya. Eminent Doctors from hospitals were delivered Ear and Hearing Health Promotion lectures on Hearing and Noise, General ear diseases in children and their Preventions. Earplugs distributed to the school children for safe listening and also free ear health check-up provided to the audience.

The half-day Program on both events under the theme 'Hear your Future' was arranged for the audience; the public will be asked to observe the Quiet Diet - one minute of quiet, regardless of your location, for 1 minute.

Other activities were also planned such as free hearing screenings, dissemination of hearing protection, local meetings to "sound off on noise, publicity, community outreach, etc.



WESPAC 2018

The CSIR-National Physical Laboratory (CSIR-NPL), Acoustical Society of India (ASI), Ultrasonics Society of India and the Western Pacific Acoustics Conference (WESPAC) organized jointly 13th Western Pacific Acoustics Conference (WESPAC-2018) during 11th – 15th November 2018 at CSIR-NPL, New Delhi. The main highlights of the conference WESPAC-2018 are given below:

1. One exclusive tutorial session was organised on the first day of the conference (Sunday) for noise control measures: 8 selective tutorial lectures to give a complete solution to the Indian diesel generator industries.
2. A large number of papers had permitted building up a challenging and exciting program for four days: 8 plenary lectures, 44 structured sessions gathering 381 oral presentations (including 55 distinguished lectures) and 3 poster sessions gathering 122 poster presentations.
3. The participation showed the attractiveness of the Indian acoustics for scientists from all over the world (26 participating countries with important foreign participation; India: 80%, Foreign 20%).
4. An exhibition was associated with WESPAC 2018 New Delhi. It was covered in ALL AREAS OF ACOUSTICS (instruments, equipment, software, services...). In order to improve the contact between the participants and the exhibitors, both morning and afternoon coffee breaks, as well as the opening reception, were organised within the exhibition area.
5. WESPAC 2018 was a unique platform for Indian, Foreign and other national Industries, Academic Institutions, Enforcing Authorities Medical Fraternity etc. To meet, exchange and trigger future collaboration projects.



Inaugural function



Inaugural function of WESPAC - 2018

Announcements

(a) National Symposium on Acoustics (NSA-2019)

The **National Symposium on Acoustics (NSA-2019)** will be held at the Department of Physics, Ravenshaw University, Cuttack (Odisha), 17th – 19th October 2019. The symposium details will be available on the symposium website as well as ASI website shortly.

Looking forward to welcoming you to **Ravenshaw University, Cuttack.**

(b) 14th Western Pacific Acoustics Conference (WESPAC 2021)

Joint meeting with ASA:
182nd Meeting, Sydney, Australia, 6-10 December, 2021.

(c) International Year of Sound

The ICA is working hard to have the year 2020 declared the International Year of Sound. The International Year of Sound 2020 will be a global initiative to highlight the importance of sound and related technologies as well as the need for quietness and peace in the lives for all in society. The International Year of Sound (IYS) will consist of coordinated activities on regional, national and international levels. Initiated by the International Commission on Acoustics (ICA), the International Year of Sound (IYS) is planned to be a global initiative to highlight the importance of sound in all aspects of life on earth. The IYS will consist of coordinated activities at all levels, aiming to stimulate understanding and awareness throughout the world of the important role that sound and hearing play in all aspects of society. Specifically, the IYS will focus the world on how sound is an integral part of society and has inspired art, music, literature, and philosophy across the centuries. The year will also promote the applications of science and technology in dealing with sound and vibration and using it for the benefit of mankind. Considerable work and negotiations with international bodies including the United Nations Educational, Scientific and Cultural Organization (UNESCO) have been necessary to achieve the IYS proposal officially. ICA will be seeking support from all

member organisations in this quest. Undoubtedly, the declaration of an IYS will provide a focus that will encourage the transfer of knowledge on creating, controlling, hearing, and using sound in nature, in the built environment and all aspects of our life.

(d) Award/International Recognition

"**Er. PVS Ganesh Kumar**, Outstanding Scientist, NSTL, DRDO, Min of Defence, Govt of India has been conferred with prestigious Scientist of the Year award. He received the award from Smt Nirmala Sitharaman, Hon'ble Defence Minister of Govt of India at a glittering function held at Delhi recently. The award was given in recognition of his significant contributions on Naval Stealth Technologies including Acoustic and Electromagnetic Signature management of warships. He was instrumental in delivering several stealth products to Indian Navy apart from setting up some of the states of the art signature management facilities in India. He is currently Principal technology Director at NSTL. He is also Vice President of Acoustical Society India and Sr Vice President of Condition Monitoring Society of India. Acoustical Society of India congratulates him on this achievement and wishes him to achieve many more laurels in future!"

Congratulations! We're all, ASI Family so proud of you!



Dr. Mahavir Singh (FASI), CSIR-NPL, has been honoured with Indo-Japan Friendship Award on Acoustics in Simulation. He has also been becoming as a Chairperson of the Selection Committee for this prestigious award for the next ten years (2019-2029) (This award carries a citation and cash prize of US \$ 1,000).

We, on behalf of ASI, congratulate him on his International award and also becoming a chairperson of this award selection committee for next ten years.



Membership News

The following is a list of approved Life Members of ASI during 2017-18:

SI. No.	Number of the Member	Name of the Member
1.	LM-944	Dr. K. K. Pandey
2.	LM-945	Mr. Shanavas Abdul
3.	LM-946	Mr. Pervez Alam
4.	LM-947	Mr. Arun Sulkunte Iyengar
5.	LM-948	Dr. R. Dhayalan
6.	LM-949	Mr. Rakesh K. M.
7.	LM-950	Mr. V. K. Pramod
8.	LM-951	Dr. V. G. Jayakumari
9.	LM-952	Dr. Veena Dhammanand Manwar
10.	LM-953	Mr. T. N. Shankar Vigranand
11.	LM-954	Mr. Rolins Thomas Roy
12.	LM-955	Dr. Manoj N. R.
13.	LM-956	Mr. Sumit Gaikwad
14.	LM-957	Mr. Naveen Kuppa
15.	LM-958	Dr. Kranti Kumar
16.	LM-959	Mr. Parag S Daflapurkar
17.	LM-960	Dr. Shakti Prasanna Jena
18.	LM-961	Dr. V. P. Subramaniam
19.	LM-962	Dr. Savita Gaur Kumar
20.	LM-963	Mr. K. Sai Aditya Raman
21.	LM-964	Dr. C. Pradeepa
22.	LM-965	Krishna Mohan Kumar
23.	LF-258	Dr. D. K. Aswal
24.	LF-259	Prof. Gopu R. Potty
25.	IM-034	M/s. Soundworks, Bangalore (Rep: Mr Harsha, MD)
26.	IM-035	M/s. Aura Synergy India Pvt. Ltd., New Delhi (Rep: Ms. Tript Pahuja)
27.	IM-036	M/s. Ideal Industries India Pvt. Ltd. (Rep: Mr. Rajesh Joshi)
28.	IM-037	M/s. Optima Power Solutions India Pvt. Ltd. (Rep. Arvind S, Patil)

New Books on Acoustics & Vibration

1. **T. Fakhfakh, F. Chaari, L. Walha, M. Abdennadher, M. S. Abbes and M. Haddar (Eds.)**, 'Advances in Acoustics and Vibration', Proceedings of the International Conference on Acoustics and Vibration (ICAV2016), March 21-23, Hammamet, Tunisia © 2017
2. **Pauric Mather**, 'The Guitar Chord Book: Acoustic Guitar Chords - for Beginners & Improvers', Createspace Independent Pub (11 May 2017), 114 pages.

New Articles

METHOD FOR SOUND INSULATION MEASUREMENTS

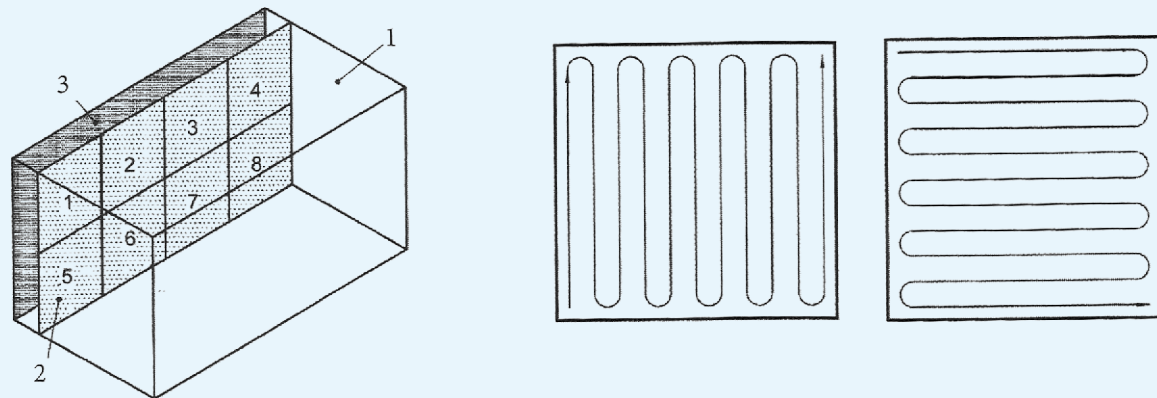
ISO 15186-2: 2010 Measurement of sound insulation in buildings and of building elements using sound intensity.

Part 1 covers laboratory measurements and Part 2 covers in situ measurement of sound insulation of walls, floors, doors and small building elements. Sound intensity enables us to measure the direction of the sound and localise sources. We can, therefore, gather information on certain parts of a partition in addition to calculating the sound reduction. ISO 15186 – 2 claims to have better reproducibility than ISO 140 – 4 & - 10. These measurements enable us to:

- ❖ Analyse flanking transmission.
- ❖ Compare with laboratory measurements, where flanking is suppressed.
- ❖ Rank partial contributions of building elements.
- ❖ Validate BS EN 12354 – 1 model.

The basic principle is to place a speaker in the 'source room' adjacent to the 'receive room', which is separated by the partition to be tested. Some measurements are made in the source room to obtain the average sound pressure. Knowing the area of the partition of the source room, the incident sound power in the source room can be calculated. The sound power for the partition in the receiving room is calculated using the same principle as described in ISO 9614, by canning the test area in sections. This is shown in Figure 1.

Figure 1. ISO 15186 -2: Sound intensity measurements



Key :

1. Reverberation room
2. Measurement surface divided into eight sub-areas
3. Building element under test (dark shaded area)

The difference between these two sound power values allows us to calculate the intensity sound reduction index.

The calculation can be seen below. The first term relates to the source room surface sound power and the second; the receiving room radiated sound power.

$$R'_i = \left[L_{p1} - 6 + 10 \log \left(\frac{S}{S_0} \right) \right] - L_{rn} + \log \left(\frac{S_M}{S_0} \right)$$

- L_{p1} is the average sound pressure level in the source room;
- S is the area of the separating building element under test or, in the case of staggered or stepped room, that part of the area common to both the source and receiving room;
- S_M is the total area of the measurement surface (s);
- $S_0 = 1 \text{ m}^2$

Limitations of measuring to ISO 150186 – 2:

Receiving room cannot be too reactive or reverberant for measurements to be valid. Repeatability of intensity scan can be an issue.

Concluding Remark

Sound intensity measurement systems have been available for many years but have tended to be complex and bulky bits of equipment to use. Advances in technology have meant small, two channel analysers can now do the job and also guide users with an interface dedicated to the application. Intensity measurements are now far easier and provide an excellent option to the acoustic professional.

MODIFIED DESIGNS OF NEW SANDWICH WALL PANEL

- ❖ 15 mm one layer of gypsum board
- ❖ two rows 38-mm x 89-mm studs staggered on common 38-mm x 10-mm pad of PVC Isolators wood stud spacing 200 mm o.c.
- ❖ With 50 mm thick glass fiber bat (absorptive material) of 90 kg/m³
- ❖ 12.5 mm two layers of gypsum boards

The minimum requirements for sound transmission loss (expressed by sound transmission class values) for dwellings as per National Building Code of India

(NBCI - 2016) is: STC >= 50 to 52 dB

The panel construction design geometry shown in Fig. 2 provides an STC rating of 56 which is ideal for an inter-dwelling partition panel as per NBCI-2016. This is approximately 10 rating points higher than the standard staggered stud panel with little increase in total mass. Finally, this product has transferred as commercialised technology on 'Acoustical Lightweight Interior Dry Wall Panel for High Sound Insulation' to the Private Industry M/s. Shehgal Doors, New Delhi.

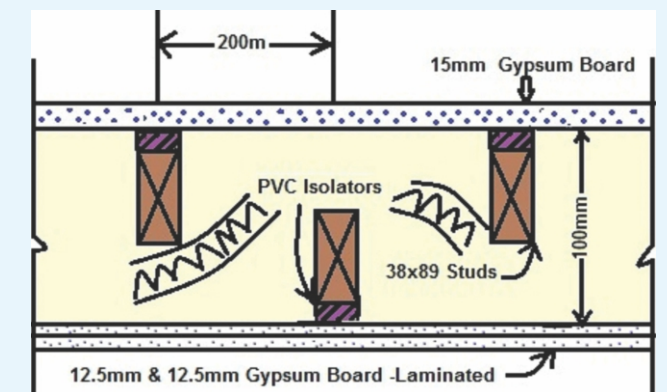


Fig. 1: New Sandwich Construction design proposed G15_SWS90 (200) – GFB90_2G12.5

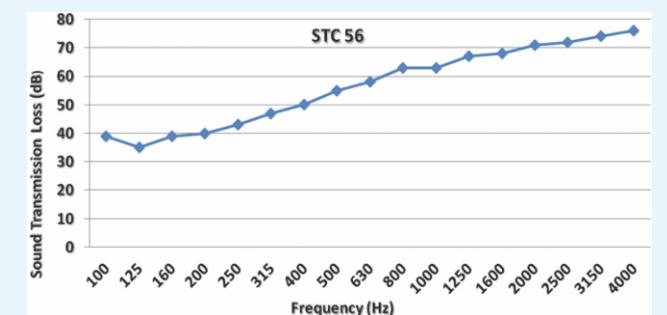


Fig. 2: Sound Transmission Loss of modified staggered stud construction design (as per ASTM E9) and ASTM E 413)

Calendar of Meetings and Conferences

Compiled by the Information Service of the Acoustical Society of India (ASI)

2019

9 - 12 April, Zakopane, Poland [ICA Sponsorship]

23rd Conference on Acoustic and Biomedical Engineering

www.iab2019.agh.edu.pl

13 - 17 May, Louisville, Kentucky, USA

177th Meeting of the Acoustical Society of America

www.acousticalsociety.org

20 - 22 May, Sopot, Poland [ICA Sponsorship]

International Symposium on Fluid Acoustics

www.ifa2019.pl

12 - 14 June, Lisbon, Portugal

International Conference on Wind Turbine Noise (WTN2019)

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

16 - 19 June, Madrid, Spain

48th International Congress and Exposition on Noise Control Engineering (INTER-NOISE 2019)

www.internoise2019.org

24 - 27 June, Toruń, Poland [ICA Sponsorship]

14th School on Acousto-Optics and Applications

saoa.fizyka.umk.pl

7 - 11 July, Montreal, Canada

26th International Congress on Sound and Vibration (ICSV26)

www.icsv26.org

5 - 6 August, Bandung, Indonesia [ASA/ICA Sponsorship]

Workshop on Acoustic Technology for Industry and Professionals

www.aavi-id.org

3 - 6 September, Bruges, Belgium

International Congress on Ultrasonics (2019 ICU Bruges)

kuleuvencongres.be/2019icu/home

08 - 13 September, Aachen, Germany

23rd International Congress on Acoustics (ICA 2019)

www.ica2019.org

13 - 17 September, Detmold, Germany [ICA Endorsement]

International Symposium on Musical Acoustics (ISMA 2019)

www.isma2019.de

15 - 17 September, Amsterdam, Netherlands [ICA Endorsement]

International Symposium on Room Acoustics (ISRA 2019)

www.isra2019.eu

19 - 21 September, High Tatras, Slovakia [ICA Sponsorship]

Acoustics 2019 High Tatras. A joint event of MAP and ATF 2019

map-atf-2019.acoustics.sk

17 - 19 October, Cuttack, Odisha

National Symposium on Acoustics (NSA - 2019)

acoustics.org.in/

30 November - 6 December, San Diego, California

178th Meeting of the Acoustical Society of America

www.acousticalsociety.org

2020

11 - 15 May, Chicago, Illinois

179th Meeting of the Acoustical Society of America

www.acousticalsociety.org

15 - 18 June, Karolinska Institutet, Stockholm, Sweden

13th ICBEN Congress on Noise as a Public Health Problem

ICBEN2020

20 - 23 September, Florianopolis, Brazil

12° Congresso Iberoamericano de Acústica (FIA 2020)

fia2020.com.br/

2021

25 - 29 July, Singapore

28th International Congress on Sound and Vibration (ICSV28)

iiav.org

1 - 4 August, Washington, USA

50th International Congress and Exposition on Noise Control Engineering

(INTER-NOISE 2021)

www.i-ince.org/

6 - 10 December, Sydney, Australia

182nd Meeting of the Acoustical Society of America joint with WESPAC 2021 and the

Australian Acoustical Society

acousticalsociety.org/asa-meetings/

2022

4 - 28 October, Gyeongju, Korea

24th International Congress on Acoustics (ICA 2022)

www.icacommission.org

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