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12th Ibero-American Congress of Acoustics & XXIX Sobrac Meeting

Event organized by the Brazilian Society of Acoustics

Abstract: Between August 28th and 31st, 2022, one of the most important and anticipated international events in the field of acoustics took place in the city of Florianópolis, Santa Catarina, Brazil — the 12th Ibero-American Acoustics Congress & XXIX Meeting of Sobrac. The event, originally scheduled to take place in 2020, had to be postponed due to the Covid-19 pandemic, but finally took shape two years later. With a schedule full of lectures, presentations, and workshops, as well as a business fair featuring the latest market developments, the congress attracted students, professors, and researchers from various areas of acoustics. Surpassing the organizers' expectations, the congress had over 500 participants over its four days and was considered a great success. A brief overview of the event is presented in this article.

12º Congresso Ibero-Americano de Acústica & XXIX Sobrac

Resumo: Entre os dias 28 a 31 de agosto de 2022 ocorreu, na cidade de Florianópolis, em Santa Catarina, um dos eventos internacionais mais importantes e aguardados na área de acústica — o 12º Congresso Ibero-Americano de Acústica & XXIX Encontro da Sobrac. O evento, inicialmente previsto para ocorrer em 2020, precisou ser adiado em decorrência da pandemia da Covid-19, mas finalmente tomou forma dois anos depois. Com uma programação repleta de palestras, apresentações e minicursos, além de uma feira de negócios com as últimas novidades do mercado, o congresso atraiu alunos, professores e pesquisadores das mais diversas áreas da acústica. Em seus quatro dias de evento, o FIA contou com mais de 500 participantes, superando as expectativas dos organizadores e sendo considerado um grande sucesso. Um breve relato do evento é apresentado neste artigo.

1. Introduction

The Ibero-American Congress on Acoustics is a series of biennial events organized by the FIA (Ibero-American Federation of Acoustics) for several decades, aimed at promoting the exchange of experiences among researchers, teachers, students, and professionals from Ibero-American countries working in acoustics, vibrations, and related areas — see the logo of the 2020/22 edition in Figure 1. FIA itself is a non-profit scientific association, founded in October 1995 in Valdivia, Chile, with its members being the acoustical societies of Spanish-speaking and Portuguese-speaking countries.



FIA 2020/22

XII IBEROAMERICAN CONGRESS OF ACOUSTICS
XXIX MEETING OF THE BRAZILIAN SOCIETY OF ACOUSTICS - SOBRAC

Florianópolis, SC, Brazil

Figure 1: Logo of the 12th Ibero-American Congress on Acoustics (FIA 2020/22).

The acoustical societies of South America have collaborated by primarily organizing conferences such as the 1st Brazil-Argentina Congress of Acoustics (I Brazilian-Argentine Congress of Acoustics), held in Florianópolis in April 1994, and several other congresses organized by the Acoustic Institute of the Austral University of Valdivia, Chile, in 1994 and 1995, also with the participation of the Acoustic Societies of Spain, Peru, and Argentina. The main objective of the Ibero-American Federation of Acoustics is the development of science and technology in acoustics and vibrations, bringing together associations from Spanish-speaking and Portuguese-speaking countries. The Ibero-American Congress on Acoustics then emerges as an effective way for the FIA to create a forum for discussion among those involved in the production, dissemination, and application of techniques and processes in the field of acoustics and vibrations.

The 12th Ibero-American Congress on Acoustics (FIA 2020/22) was initially scheduled to take place in 2020 but had to be postponed due to the Covid-19 pandemic, finally being held in August 2022. The event featured activities from the scientific program, as well as a special program in reference to the International Year of Sound (IYS 2020–2021), celebrated in 2020 and extended into 2021 due to the pandemic. The program included lectures by world-renowned experts, as well as presentations of papers, mini-courses, and posters on topics related to various areas of acoustics and vibrations. In addition, the event included a business fair showcasing the latest technological innovations on the market. The organization was led by professors from the Laboratory of Vibrations and Acoustics (LVA) at UFSC, which was established in the early 1980s and has since become hub for research and technological development in the field of vibrations and acoustics in Brazil. The Brazilian Society of Acoustics (Sobrac), as the entity responsible for the event, with its organizing committee counting upon the support of various national institutions and societies towards organizing and promoting the event. Besides the scientific part and the business fair, the event also offered various special activities in reference to the International Year of Sound, a Unesco initiative to highlight the relevance of sound in people's lives and connect people through sound experiences.

This text presents a brief report of the event, including a description of the event program and the various activities that took place in the days leading up to and during the event.

2. A Report on FIA 2020/22 and Sobrac XXIX

The FIA 2020/22, as the 12th Ibero-American Congress on Acoustics and the XXIX Meeting of Sobrac was called, took place from August 28 to 31, 2022, in Florianópolis, Santa Catarina, Brazil. The congress was held at the Costão do Santinho Resort, which has top-notch facilities for hosting national and international events.

During the two years of waiting, expectations for the congress grew among experts and scholars in the field of acoustics. As an event of great notoriety and with the presence of numerous world-renowned researchers and professionals, the congress had a significant impact on the academic community. This is because the FIA 2020/22 can be considered the largest event in the field of acoustics and vibrations held in Brazil in the last decade — considering that ICSV 2011 (International Conference on Sound and Vibration) took place in Rio de Janeiro in 2011, the last major international event. Moreover, gathering a comprehensive number of oral presentations, lectures, mini-courses, papers, workshops, posters, and various high-quality technical contents, the event allowed, after a long period of social distancing due to the pandemic, national and Ibero-American researchers to once again come together and disseminate their scientific and technological advances to the technical-scientific community. Thus, giving the opportunity and visibility for them to present their latest work in the area, in addition to promoting fundamental discussions for advancing research.

In general, the space provided during the congress facilitated discussions about the development of new

technologies, equipment, and experimental and numerical methods related to the fields of acoustics and vibrations. It is important to highlight that these fields of study are intrinsically multidisciplinary, and thus, many of their advancements impact numerous other areas of knowledge. In this way, the FIA 2020/22 successfully fulfilled its role as a broad, comprehensive, and multidisciplinary congress, providing its participants with the opportunity to see firsthand the latest advancements in the most diverse areas of acoustics.

2.1 Organizing Committee and Board of Sobrac

The organizing committee of the FIA 2020/22 was composed of professors from the Laboratory of Vibrations and Acoustics (UFSC): Prof. Júlio A. Cordioli (Chairman of the Organizing Committee), Prof. Andrey R. da Silva (Chairman of the Technical Committee), and Prof. Stephan Paul (Vice-Chairman of the Organizing Committee), and also included the presence of architects and professors Débora Barreto (UNIME/Audium) and Cândida Maciel (Síntese) as Advisors, both with extensive experience in organizing events in the field of acoustics and who played a fundamental role in organizing this congress.

In addition, the organization of the event also counted on the assistance of the Board of Sobrac. Due to the postponements, this function went through different mandates, with the board in the year of the event composed by: Krisdany Vinicius Santos de Magalhães Cavalcante (President), Elcione Maria Lobato de Moraes (Vice-President), Cândida de Almeida Maciel (First Treasurer), Ranny Loureiro Xavier Nascimento Michalski (Second Treasurer), Viviane Suzey Gomes de Melo (First Secretary), and Sergio Fernando Saraiva da Silva (Second Secretary). However, previous boards also played an important role, particularly the administrations presided over by Prof. Stelamaris Rolla Bertoli. A photo of the organizing committee at the opening ceremony is shown in Figure 2



Figure 2: Organizing committee at the opening ceremony.

Lastly, the Board of the FIA, composed of Nilda Vechiatti (President), Jorge Moreno Ruiz (1st Vice-President), Samir N. Y. Gerges (2nd Vice-President), Alice Elizabeth González (Treasurer), and Ricardo Hernández Molina (Secretary General), also played an important role in the organization of the FIA 2020/22.

2.2 Scientific Committee

In addition to the Organizing Committee and the Board of Sobrac, the event also had the support of the Scientific Committee, composed of nationally and internationally renowned researchers and professionals, listed here in alphabetical order:

- Alexander Mattioli Pasqual, ITA (Brazil);
- Ana Carolina de Assis Moura Ghirardi, UFSC (Brazil);
- André Cavalieri, ITA (Brazil);
- Arcanjo Lenzi, UFSC (Brazil);
- Arthur Ayres Neto, UFF (Brazil);
- Bruno Sanches Masiero, Unicamp (Brazil);
- Carolina Rodrigues Alves Monteiro, Harmonia Acústica (Brazil);
- Denison de Oliveira, HBK – Hottinger Brüel & Kjær (Brazil);
- Domingos Rade, ITA (Brazil);
- Eduardo Lobão Capucho Coelho, Embraer (Brazil);
- Elcione Moraes, UFPA (Brazil);
- Enrique Suárez Silva, UACH (Chile);
- Eric Brandão Carneiro, UFSM (Brazil);
- Felipe Vergara, UFSC (Brazil);
- Fernando Augusto de Noronha Castro Pinto, UFRJ (Brazil);
- Fernando Henrique Nardelli, Siemens (Brazil);
- Gilberto Fuchs, GROM (Brazil);
- Igor Valdebenito, Ministerio Del Medio Ambiente (Chile);
- Israel Pereira, Embraer (Brazil);
- Jorge Arenas, UACH (Chile);
- José Francisco Lucio Naranjo, EPN (Ecuador);
- Juan Frias, Bracústica (Brazil);
- Krisdany Cavalcante, DB Laboratório de Acústica (Brazil);
- Leandro Pires, Anatel (Brazil);
- Leonardo Fuks, UFRJ (Brazil);
- Luis Bento Coelho, Universidade de Lisboa (Portugal);
- Luiz Godinho, Universidade de Coimbra (Portugal);
- Luiz Wagner Pereira Biscainho, UFRJ (Brazil);
- Marcio Avelar, UFTPR (Brazil);
- Marcos Cesar de Barros Holtz, Harmonia Acústica (Brazil);
- Marcus Vinícius da Silva Simões, IEAPM/MB (Brazil);
- Maria Fernanda de Oliveira, Unisinos (Brazil);
- Maria Lygia Niemeyer, UFRJ (Brazil);
- Maria Madalena Canina Pinheiro, UFSC (Brazil);
- Mario Rollo, UNESP (Brazil);
- Martín Rocamora, Universidad de la República (Uruguay);
- Miguel António Lopes de Matos Neves, ID-MEC/Instituto Superior Técnico (Portugal);
- Olavo Mecias da Silva Junior, LVA/UFSC (Brazil);
- Paulo Medeiros Massarani, Inmetro (Brazil);
- Priscila da Silva Wunderlich, ProAcústica (Brazil);
- Renata Scharlach, UFSC (Brazil);
- Ricardo Mikio Doi, Embraco (Brazil);
- Ricardo Musafir, UFRJ (Brazil);
- Roberto A. Tenenbaum, UFSM (Brazil);
- Rodrigo Pereira Barretto da Costa Felix, Inmetro (Brazil);
- Sideto Futatsugi, Embraer (Brazil);
- Tais Morata, NIOSH (USA);
- William D'Andrea Fonseca, UFSM (Brazil); and
- Zemar Martins Defilippo Soares, Inmetro (Brazil).

2.3 Event Program

With an outstanding organization, one of the highlights of the FIA 2020/22 was the scientific and social program it offered participants. In this regard, the congress featured a special program in commemoration of the International Year of Sound, celebrated in 2020, and included lectures by world-renowned experts, as well as presentations of papers and posters on various topics. The areas that were covered during FIA 2020/22 included:

- Environmental Acoustics;
- Hearing and Speech Acoustics;
- Building Acoustics;
- Room Acoustics;
- Musical Acoustics;
- Underwater Acoustics;
- Vehicle Acoustics;
- Virtual Acoustics;
- Aeroacoustics;
- Audio and Electroacoustics;
- Bioacoustics;
- Noise Control;
- Acoustics Education;
- INAD and IYS 2020–2021;
- Legislation and Standardization in Acoustics;
- Acoustic Materials;
- Measurements in Acoustics and Vibrations;
- Numerical Methods in Acoustics and Vibrations;
- Soundscape;
- Signal Processing;
- Psychoacoustics; and
- Noise and Vibrations in the Workplace.

2.3.1 Sunday: August 28

During the first day of the event (08/28), the initial mini-courses of the congress were held in the morning, covering topics such as acoustic measurements, acoustic materials, virtual acoustic reality, and optimization in acoustics, among others. In the afternoon, the program continued with more mini-courses, then exploring areas such as noise control, environmental noise standards, and office acoustics. Figures 3 (a) and 3 (b) showcase some moments from these mini-courses.

The opening ceremony of the congress took place at the beginning of Sunday evening, conducted by the Chairman of the Organizing Committee, Prof. Júlio Cordioli, in the presence of authorities, members of the FIA and Sobrac Boards, and event participants. Júlio welcomed all participants and officially declared the event open, inaugurating the congress with the keynote lecture “(Aero)Acoustic Challenges in Future Smart Cities”, delivered by Prof. Francesco Avallone from Delft University of Technology (Netherlands). The first day concluded with the opening of the Exhibitors’ Fair and a large cocktail reception for the congress participants at the exhibitors’ stands (Figure 3 (c)).

2.3.2 Monday: August 29

The second day of the congress (08/29) continued with a program more focused on technical paper presentations and workshops. Throughout the morning and afternoon, there were more than 60 oral presentations and posters. The areas explored by the speakers included: Environmental Acoustics; Signal Processing; Virtual Acoustics; Underwater Acoustics; Building Acoustics; Audio and Electroacoustics; Hearing and Voice Acoustics; and Legislation and Actions in Acoustics. The second day also featured two keynote lectures with the first, “Considering Electric Measurements for NVH”, presented by Mitchell Marks from HBK – Hottinger Bruel & Kjaer (USA) in the morning. In the afternoon, the keynote lecture “Spatial Room Impulse Responses – Measurements, Analysis, and Auralization” was

given by Tapio Lokki from Aalto University (Finland). In addition to the technical lectures, workshops by Ecofiber and Portal Acústica took place, along with the exhibitors' fair (Figure 3 (d)). The day ended with another networking opportunity at the jam session held at the Exhibitors' Fair (Figure 3 (e)).

2.3.3 Tuesday: August 30

The third day of FIA 2020/22 was marked by an abundance of technical work, with over 50 oral presentations and posters taking themes already explored the previous day deeper and shedding light on new areas such as Numerical Methods; Measurements in Acoustics and Vibrations; Musical Acoustics; Education in Acoustics; Psychoacoustics; Soundscapes; Acoustic Materials; and Noise and Vibrations. The day was complemented by workshops from Trisoft and HBK, as well as the opportunity to interact with exhibitors.

The first keynote lecture titled "Acoustic Masking Effects and the Impact on Quality and Intelligibility: Trends and Solutions" on the third day was presented by Rosângela Coelho from the Military Institute of Engineering (IME). In the afternoon, the second keynote lecture of the day titled "Why do I hear but not understand? Factors hindering the intelligibility of speech in noise" was delivered by Prof. Enrique A. Lopez-Poveda from the University of Salamanca (Spain).

The day concluded with a dinner gathering speakers, researchers, and organizers of the event (Figures 3 (f) and 3 (h)).

2.3.4 Wednesday: August 31

In the morning of the last day of the event, lectures and technical paper presentations were held. The keynote lecture titled "Paths of Acoustics in Brazil and Ibero-American Countries", was presented by Prof. Dinara Xavier da Paixão from the Federal University of Santa Maria (UFSM).

Finally, the Closing Ceremony of the congress took place (Figures 3 (i) and 4), and the farewell to the 12th Ibero-American Congress on Acoustics was marked by excitement and satisfaction among all the organizing committee and other event participants, who contributed to making the four days full of conversations, debates, and study, concluding the FIA 2020/22 with great success and anticipation for the next event.



(a) Record of a mini-course conducted.



(b) Record of a mini-course conducted.

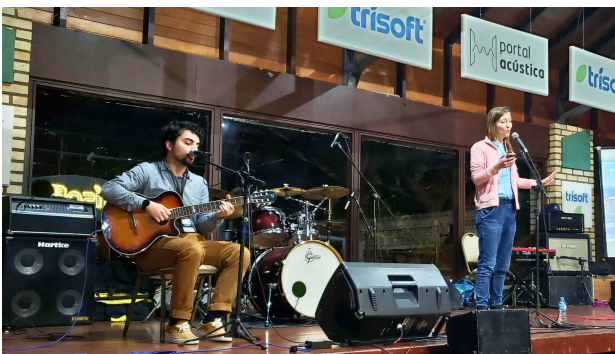
Figure 3: Records of moments and activities throughout FIA 2020/22 (1/2).



(c) Participants at the opening cocktail.



(d) Participants at the Exhibitors' Fair.



(e) Night of music and jam session.



(f) Participants and organizers at the Networking Dinner.



(g) Preparation for the XXX Sobrac Meeting in Natal, RN (2023).



(h) Participants and organizers at the Networking Dinner.



(i) FIA 2020/22 participants at the Closing Ceremony.

Figure 3: Records of moments and activities throughout FIA 2020/22 (2/2).



Figure 4: FIA 2020/22 participants at the Closing Ceremony.

3. FIA 2020/22 in Numbers

Held two years later than originally planned due to the Covid-19 pandemic, the figures for the FIA 2020/22 surpassed the organizers' expectations. From the initial phase, during the registration period, more than 400 abstracts were submitted, demonstrating the event's relevance and the academic community's anticipation. In total, of the 400 abstracts, over 200 were submitted with final papers and presented at the event, with about 180 through oral presentations and 30 via posters. Regarding the mini-courses, 9 were conducted in total, attended by over 150 participants.

In final numbers, including congress participants, exhibitors, and visitors, the congress had around 500 attendees, attending from and representing 13 different countries. In conclusion, the FIA 2020/22 was a success in numbers across all areas, from attendance to the extensive range of papers presented. Finally, the FIA 2020/22 could not have been realized without the support of sponsoring companies and supporting institutions. In this regard, more than 20 companies and institutions sponsored (16) and supported (7) the congress (see the logos in Figure 5).

Gold Sponsor



Brass Sponsor



Silver Sponsor



Support



Figure 5: Sponsoring and supporting companies and institutions of the FIA 2020/22.

4. Reports of a Sounding Gaze by Sérgio Silva

On August 28, 29, 30, and 31, 2022, one of the most anticipated in-person gatherings in the world of Brazilian acoustics took place — the 12th Ibero-American Congress on Acoustics and the 29th Meeting of Sobrac.

It is simply gratifying to report the existence of this select group of wonderful human beings who promote the improvement of sound in the daily life of society, where technology and vital needs are drivers of academic projects that constantly evolve in the professional context, and physical spaces evolve in strategic scientific steps. The event allowed the reunion of acoustic professionals, who, due to a biological adversity, converged again in physical interactions, resuming reflections on the importance of sound care from the perspective of producing advantages for social evolution.

Much more than a gathering of well-intentioned people in a favorable atmosphere, and with traditionally competent organization, it was in the city of Florianópolis, the magical island of the state of Santa Catarina, charismatic Brazil, that another circuit of technological innovation flowed with scientific reviews, lectures, customized stands, and the recovery of individual experiences summed up in a collective result.

The democratization of acoustics was consolidated among various flashbacks and the establishment of new paths for the routine of work, reuniting the academic world with market demands, represented in the presence of students, faculty, businesspeople, and special guests. A historic milestone.

Sound was present in its various forms of propagation and contagion, for in each space planned for the event were people sensitized with the responsibility to maintain the harmony of this brave physical phenomenon that measures social oscillations. The better the acoustic scenario, the greater the social happiness.

The world continues in quantitative evolution, where eight billion human beings become an expression of care in urbanizations and a billion more young, inattentive consumers of sound constantly require the professional work of this dense scientific fraction capable of collaborating with acoustic health and multiplying its battalion to ensure the acoustic sustainability of the planet.

In conclusion, there is certainty that the path to the success of the entire historical structure is the maintenance of scientific activities promoted by groups of technical personalities responsible for ensuring that sound is a protagonist in promoting the quality of life, glorifying the actions and stakeholders of these events.