THE 26TH INTERNATIONAL CONGRESS ON SOUND AND VIBRATION: BEHIND THE SCENE

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Résumé

L'International Institute of Acoustics and Vibration (IIAV) et l'Association canadienne d'acoustique (CAA) ont eu le plaisir d'inviter des scientifiques et des ingénieurs du monde entier à participer au 26e Congrès international sur le son et les vibrations (ICSV26) qui s'est tenu à Montréal du 7 au 11 juillet 2019. Cet événement a été un grand succès, avec 1015 résumés reçus, 861 participants, 829 présentations, 52 pays, 45 sessions structurées, 31 sessions régulières, 31 présidents de zones thématiques, 27 volontaires, 25 exposants, 15 zones thématiques, 9 événements sociaux, 6 conférences plénières, 4 journées chaudes et ensoleillées, 3 visites scientifiques et 1 lieu unique et pratique. Ce rapport présente les faits saillants de la conférence dans l'espoir d'aider les futurs organisateurs de la conférence.

Mots clefs: conférence, organisation, conseils, expérience de première main

Abstract

The International Institute of Acoustics and Vibration (IIAV) and the Canadian Acoustical Association (CAA) were pleased to invite scientists and engineers from all over the world to attend the 26th International Congress on Sound and Vibration (ICSV26) held in Montréal 7–11 July 2019. This event was a great success, with 1015 abstracts received, 861 participants, 829 presentations, 52 countries, 45 structured sessions, 31 regular sessions, 31 theme area chairs, 27 volunteers, 25 exhibitors, 15 theme areas, 9 social events, 6 plenary lectures, 4 warm and sunny days, 3 scientific visits, and 1 unique and convenient venue. This report presents the highlights of the conference in hope to support future conference organizers.

Keywords: conference, organization, advises, hands-on experience

1 Introduction

The International Institute of Acoustics and Vibration (IIAV) and the Canadian Acoustical Association (CAA) were pleased to invite scientists and engineers from all over the world to attend the 26th International Congress on Sound and Vibration (ICSV26) held in Montréal 7–11 July 2019.

This congress is a leading event in the area of Acoustics and vibration and provides an important opportunity for scientists and engineers to share their latest research results and exchange ideas on theories, technologies and applications in these fields. The Congress featured a broad range of high-level technical papers from across the world: distinguished plenary lectures presented recent developments in important topics of sound and vibration and included discussions about future trends.

2 The seed and gestation

The seed for ICAV26 was planted when Prof. Crocker eventually approached Prof. Voix, the soon-to-be General Chair, in October 2015. After Franck Sgard agreed to be Scientific Chair, the local scientific committee was quickly started around the enthusiasm and good will of a dozen local colleagues from industry and academia. Tourisme Montreal, a promotional entity for the city of Montreal, was solicited early 2016 and in June the first contact was established with Mrs Carol Damiani, quickly seconded by Mrs. Paola Pilot, who would soon become one of the most instrumental persons to guide the general and technical chairs through the many necessary steps required for the organization of a large scientific conference. After a relatively busy year of visits, meetings and discussions, email exchanges with IIAV Head Office, the final budgets were ready. They included submissions received for 3 different venues (two hotels and Montreal Congress Center), two audio-visual rentals and various scenarios for social events. The "Montreal Bid Book" was presented at the IIAV Board Meeting in July 2017 in London (UK) and the various options discussed with IIAV Executive Committee. The Hotel Bonaventure venue was eventually chosen, the Congress dates were finalized and the green light was received from IIAV for ICSV26 Organizing Committee to make it happen! ICSV26 congress was finally coming to light in early September 2017, right after a formal Local Hosting Agreement was executed between IIAV and the Canadian Acoustical Association (CAA) through its president -at the time- Prof. Frank Russo.

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The logo and the website placeholder

Everything starts with a logo and a website. The logo was inspired by the Jacques-Cartier bridge, a famous infrastructure built in 1930, and the final design, reproduced in Fig. 1, was provided by Mrs Clara Michaud. A first version of the website was launched in Fall 2017 with http://www.icsv26.org as registered domain. The website hosting was offered by CAA, and several official email identities and alias were created, such as :

- info@icsv26.org,
- general_chair@icsv26.org,
- scientific_chair@icsv26.org,
- secretariat@icsv26.org,
- exhibitors@icsv26.org,
- media@icsv26.org;

to ensure professional and consistent communication channels during the whole conference endeavour.

Figure 1: The official banner of ICSV26, featuring its logo and the Jacques Cartier bridge

2.1 The committees

The Local and International Organizing and Scientific Committees were formed in 2017 and were also proposed to the IIAV Board of Directors during the ICSV24 meeting held in London (UK).

Organizing committee

The Local Organizing Committee comprised the General Chair, the Scientific Chair, the Sponsors and Exhibitors Chair and co-Chairs, the secretary and the on-site coordinator and members of the IRSST Communication Department. It was supported by an International Organizing Committee made up of the IIAV President Malcolm Crocker and several IIAV directors and members.

Scientific committees

The local committee included the General Chair, the Scientific Chair, 21 theme area chairs and 39 session chairs coming out from Canadian Universities, research centres and companies. The International Scientific Committee comprised 10 IIAV officers and directors together with about 130 session chairs. Figure 2 recalls the names of the persons in charge in the two committees.

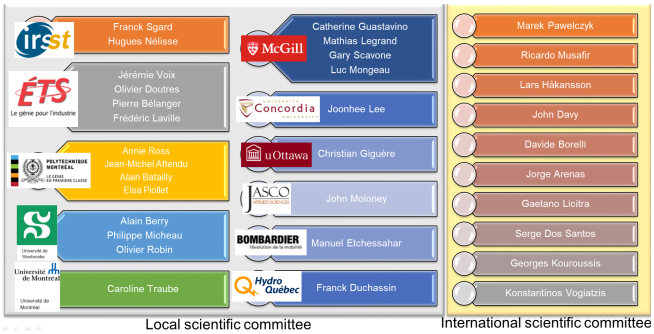

Figure 2: The local and international scientific committees

The Theme Area Chairs were responsible for coordinating their theme area, defining regular and structured sessions on different topics areas, appointing chairs to organize these sessions, contributing to the definition of plenary sessions and overseeing the evaluation of abstracts and proceedings that were peer-reviewed.

2.2 A good surprise

The IRSST/Ambassadors' Club Joint Award was handed out to ICSV26 General and Scientific Chairs at the 2018 Recognition Award Gala, a marquee event organized by the Palais des congrès de Montréal. IRSST president and CEO, Ms. Marie Larue, underscored the work of the two award recipients at the 2018 Recognition Gala: "I would personally like to congratulate researchers Jérémie Voix and Franck Sgard, whose dedication and efforts succeeded in bringing this prestigious international congress to Montreal."

"Influential women and men who actively attract international congresses to Montreal do so with a passion and pride that are both celebrated at the Recognition Award Gala, a prestigious event where our vibrant metropolis is showcased by the tourism industry and the university and business communities," explained Professor Hany Moustapha, president of the Ambassadors' Club of the Palais des congrès de Montréal.

Figure 3: ICSV26 General Chair (left) and Scientic Chair (middle) holding the Amabassadors' Club plaque (left) and Mrs Marie Larue, President of IRRST (right).

2.3 The Scientific Program

In order to cover the broadest range of high-level technical contributions from all over the world, the Scientific Program was structured into 15 Theme Areas (T), that included several Structured Sessions and Regular Sessions (see Fig. 4).

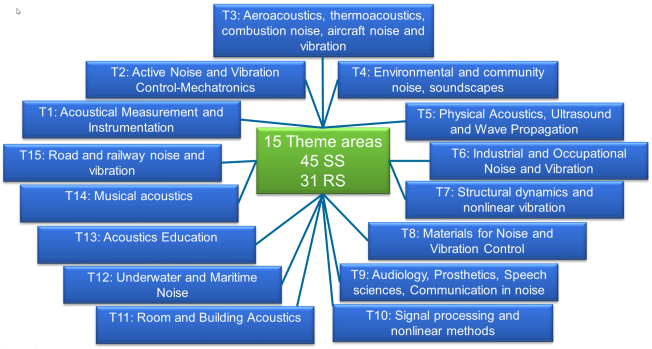

Figure 4: Theme areas

Theme Area T01 - Acoustical measurement and instrumentation

This Theme Area, lead by Lars Håkansson, covered all aspects related to the measurement of sound and vibration. It included sessions concerning traditional measurement instruments but also proposals concerning new measurement concepts: new transducers, new mathematical algorithms, new acoustical parameters, or new applications of traditional technologies for multimedia and virtual reality. The Regular Sessions were T01 RS01 - Acoustic imaging and acoustic detection (Lars Håkansson, Sweden), T01 RS02 - Measurement techniques and sensors (Lars Håkansson, Sweden & Triantafillos Koukoulas, South Korea), T01 RS03 - Measurement uncertainty in Acoustics (Lars Håkansson, Sweden & Andreas Linderholt, Sweden), T01 RS04 - Instrumentation for sound and vibration measurements and analysis (Lars Håkansson, Sweden) and the Structured Session was mostly T01 SS01 - Sound and vibration measurements and analysis (Lars Håkansson, Sweden & Claes Hedberg, Sweden & Mitsunori Mizumachi, Japan).

Theme Area T02 - Active noise and vibration control-mechatronics

This theme, lead by Alain Berry, Philippe Micheau and Marek Pawelczyk, included any concept or device that requires a combination of actuators (loudspeaker, piezoceramic, inertial actuator...), sensors (accelerometer, microphones...) and control units for real-time signal processing. The theme includes active and semi-active, control of sound and vibration, smarts structures, smart earplug, smart headset, mechatronics,etc. Presentations included conceptual design of system, theoretical development, algorithms design and practical implementations. The Regular Sessions were T02 RS01 - Active control of sound and vibration (Alain Berry, Canada & Philippe-Aubert Gauthier, Canada), T02 RS02 - Active structural acoustic control (Philippe Micheau, Canada), T02 RS03 - Semi-active control (Philippe Micheau, Canada), while the Structured Sessions were T02 SS01 - Actuators and sensors for active control (Manuel Melon, France & Bruno Gazengel, France), T02 SS02 - Algorithms for active control (Jordan Cheer, United Kingdom & Marek Pawelczyk, Poland) and T02 SS03 - Active meta-materials (Hervé Lissek, Switzerland).

Theme Area T03 - Aeroacoustics, thermoacoustics, combustion noise, aircraft noise and vibration

his Theme Area, lead by Luc Mongeau, Manuel Etchessahar and Ricardo Musafir, was devoted to all aspects concerning sound generated by fluid flow, combustion processes or by the interaction of a flow with surfaces, as well as aircraft noise and vibration. Some examples included description of source mechanisms or of propagation in particular situations; jet noise; fan and compressor noise; wind turbines; active or passive control of aerodynamically generated sound and vibration, notably in aircraft, trains and other vehicles, including space vehicles; analytical and numerical solutions for specific problems. The Regular Sessions were T03 RS01 - Aeroacoustics (Luc Mongeau, Canada & Michel Roger, France & Kaveh Habibi, Canada), T03 RS02 - Aviation noise (Jim Kok, Netherlands & Ricardo Musafir, Brazil), while the Structured Sessions were T03 SS01 - Acoustic simulation, test and control in spacecraft (Zheng Ling, China & Stephan Tewes, Germany), T03 SS02 - Computational Aeroacoustics (Gwenael Gabard, France), T03 SS03 - Combustion noise and Thermoacoustics (Maria Heckl, United Kingdom), T03 SS04 - Aircraft cabin noise and vibration control (Stephan Tewes, Germany), T03 SS05 - Wind turbine noise (Kaveh Habibi, Canada), and T03 SS06 - Aicraft engine noise (Robby Lapointe, Canada).

Theme Area T04 - Environmental and community noise, soundscapes

This Theme Area, lead by Catherine Guastavino, Franck Duchassin and Gaetano Licitra, covered all aspects of environmental, community noise and soundscape research. These topics included, but are not limited to, environmental noise strategy, the role of sound in urban experience, outdoor noise propagation, community involvement and soundscape assessments. The Regular Sessions were T04 RS01 - Community and environmental noise (Anthony Gérard, Canada & Romain Dumoulin, Canada), T04 RS02 - Noise impact assessment (Stephen Keith, Canada & Martin Meunier, Canada), T04 RS03 - Noise modelling and mapping (Gaetano Licitra, Italy & Anthony Gérard, Canada), while the Structured Sessions were T04 SS01 - Soundscape auralization (Philippe-Aubert Gauthier, Canada & Cédric Camier, France & Anthony Gérard, Canada), T04 SS02 - Urban soundscapes (Daniel Steele, Canada), and T04 SS03 - Action plans in urban areas (Anthony Gérard, Canada & Erik Buehlmann, Switzerland).

Theme Area T05 - Physical Acoustics, ultrasound and wave propagation

This Theme Area, lead by Pierre Belanger and Serge Dos Santos, touched upon all aspects of ultrasonic wave propagation including analytical modelling, numerical modelling, transduction mechanisms, imaging algorithms, quantitative inversion algorithms as well as nonlinear Acoustics. This theme was interested in the biomedical, nondestructive testing and structural health monitoring fields of application. The Regular Sessions were T05 RS01 - Ultrasound and ultrasonic measurements techniques and sensors (Daniel Pereira, Canada), T05 RS02 - Physical Acoustics (Daniel Pereira, Canada & Pierre Belanger, Canada & Guillaume Haiat, France), while the Structured Sessions were T05 SS01 - Wave propagation in complex media (Guillaume Haiat, France & Pierre Belanger, Canada), T05 SS02 - Nonlinear Acoustics and vibrations (W. S. Gan, Singapore), T05 SS03 - Sound propagation in curvilinear spacetime (Giorgio Palma, Italy), T05 SS04 - Duct Acoustics (Hans Boden, Sweden) and T05 SS05 - Acoustic emission (Md. Tawhidul Islam Khan, Japan)

Theme Area T06 - Industrial and occupational noise and vibration

This theme, lead by Hugues Nélisse and Franck Sgard, involved hearing loss prevention and protection of workers exposed to occupational noise and vibration. It included the identification of risk arising from noise and vibration at work, the development and improvement of measurement and assessment methods, predictive and modeling methods, hearing protection (measurements, advanced technologies, comfort), hand-arm and whole-body vibration, machinery and factory noise, etc. The Regular Session was T06 RS01 - Noise source identification in the workplace (Dariusz Pleban, Poland), while the Structured Sessions were T06 SS01 - Hearing protection (Alberto Behar, Canada & Cameron Fackler, United States & Hugues Nélisse, Canada), T06 SS02 - Hand-arm and whole-body vibration (Pierre Marcotte, Canada), T06 SS03 - Noise and vibration in small, medium and large industries (Naval Agarwal, United States) and T06 SS04 - Advances in machinery noise and vibration control (Eleonora Carletti, Italy).

Theme Area T07 - Structural dynamics and nonlinear vibration

This Theme Area, lead by Alain Batailly, Mathias Legrand and Elsa Piollet, covered all aspects of experimental and computational methods for the characterization, analysis, design and optimization of nonlinear mechanical systems. These topics include, but are not limited to, emerging methods in mechanical system design, optimal design in the framework of nonlinear dynamics, vibration control and damping of nonlinear systems, stochastic analysis and robust design, recent developments in numerical methods (finite volumes, boundary element methods, octree mesh, isogeometric analysis), artificial intelligence and machine learning in structural dynamics, and rotordynamics. The Regular Sessions were T07 RS01 - Modal analysis (Miroslav Janota, Czech Republic & Vadym Kruts, Ukraine), T07 RS02 - Vibration and control of nonlinear mechanical systems (Mohammad Rafiee, Canada & Elsa Piollet, Canada & Annie Ross, Canada), T07 RS03 - Structural Acoustics and vibration (Guilhem Michon, France & Évangéline Capiez-Lernout, France & Simon Jones, United States), T07 RS04 - Rotordynamics (Elsa Piollet, Canada), T07 RS05 - Fatigue, fracture and joint interfaces (Mohammad Rafiee, Algeria), and T07 RS06 - Optimal design and uncertainty quantification (Kamal Kesour, Canada).

Theme Area T08 - Materials for noise and vibration control

This theme, lead by Olivier Doutres and Jorge Arenas, touched on the recent advances in material science, manufacturing processes, chemistry, and nanotechnologies that were producing significant improvements in the design, production, and performance of specialized materials and metamaterials. Papers related (but not limited) to advances, development, analysis and/or optimization of materials or metamaterials that have been produced for the specific purpose of providing high values of sound absorption, vibration damping, and vibration and/or noise isolation are welcome within this Theme Area. The papers covered fundamental research, and/or applications, related to design, modelling, testing, and/or manufacturing of noise and vibration control materials or metamaterials. Due to the importance of the subject, this area also welcomed studies on environmentally friendly materials that are made of recycled products and/or through less contaminating processes. The Structured Sessions were T08 SS01 - Passive sound absorbing and insulating materials (Raymond Panneton, Canada & Francesco Asdrubali, Italy & Thomas Dupont, Canada & Philippe Leclaire, France), T08 SS02 - Vibration damping materials (Mohammad Rafiee, Canada), T08 SS03 - Acoustic metamaterial and phononic crystal: fundamentals & applications (W. S. Gan, Singapore & Wonju Jeon, South Korea) and T08 SS04 - Characterization of acoustical materials (Chiara Scrosati, Italy & Edoardo Alessio Piana, Italy & Nicolaas Bernardus Roozen, Belgium & Olivier Robin, Canada).

Theme Area T09 - Audiology, prosthetics, speech sciences, communication in noise

This theme, lead by Christian Giguère, covered all aspects related to advancements in the hearing and speech sciences, including but not limited to the following topics: psycho/physiological Acoustics, audiology, speech Acoustics and disorders, bio-inspired signal processing, and prosthetics. The Regular Session was T09 RS01 - Psychological and physiological Acoustics (Benoît Jutras, Canada & Christian Giguère, Canada), while the Structured Sessions were T09 SS01 - Hearing aids, cochlear implants and other hearing technologies (Christian Giguère, Canada), T09 SS02 - Development of speech tests for clinical and auditory fitness for duty evaluations (Josée Lagacé, Canada & Chantal Laroche, Canada) and T09 SS03 - Integrating personal hearing protec-

tors in safe working routines: use, communication and environmental awareness (Rachel Bouserhal, Canada).

Theme Area T10 - Signal processing and nonlinear methods

This theme, lead by Jean-Michel Attendu and Annie Ross, covered a wide range of topics related to the application of signal processing and nonlinear methods to the analysis of acoustics and vibration systems. This includes linear and nonlinear signal processing, vibro-acoustic imaging, source localization, inverse problems, big data problems, parametric and non-parametric pattern recognition, vibro-acoustical condition monitoring, diagnosis and prognosis. The Regular Sessions were T10 RS01 - Signal processing techniques for acoustic array systems and inverse problems (Thomas Padois, Canada), T10 RS02 - Fault diagnosis and prognosis (Aouni Lakis, Canada), T10 RS03 - Machinery health monitoring (Sébastien Laurier-Chapleau, Canada), T10 RS04 - Signal processing in Acoustics and vibration (Annie Ross, Canada), while the Structured Session was T10 SS01 - Compressive sensing and sparse signal reconstruction (Gilles Chardon, France).

Theme Area T11 - Room and building Acoustics

This theme, lead by John Laurence Davy and Joohnee Lee, covered all aspects of building and room Acoustics related to the transmission of sound and vibration through building elements, the acoustical qualities of spaces and the architectural acoustic design. The common framework was the noise and vibration control methodology and the evaluation of the perceived quality of sound in rooms. The Regular Sessions were T11 RS01 - Building Acoustics (Joohnee Lee, Canada & Siu-Kit Lau, Singapore), T11 RS02 - Human response to noise and vibration in built environments (Pyoung Jik Lee, United Kingdom), while the Structured Sessions were T11 SS01 - Room Acoustics design: from modeling, to VR and final project (Umberto Berardi, Canada), T11 SS02 - Classroom Acoustics (Lily Wang, United States), T11 SS03 - Measurement and prediction of sound insulation (Jeffrey Mahn, Canada & John Davy, Australia) and T11 SS04 - Structureborne and impact noise in buildings session (Naval Agarwal, United States & Roderick Mackenzie, Canada).

Theme Area T12 - Underwater and maritime noise

This theme, lead by John Moloney and Davide Borelli, covered underwater and maritime noise included ship noise and vibration, harbour and environmental underwater noise, underwater noise from pile driving, marine propeller noise, underwater acoustic communication and signal processing, numerical methods for underwater Acoustics and vibroacoustics of submerged structures. The Regular Sessions was T12 RS01 - Underwater sound (Venugopalan Pallayil, Singapore), while the Structured Sessions were T12 SS01 - Technology for underwater sound measurement and monitoring (Adrian Brown, United Kingdom), T12 SS02 - Ship and harbour noise and vibration (Davide Borelli, Italy & Tom Dakin, Canada & Ildar Urazghildiiev, United States), and T12 SS03 - EU Interreg Italy-France Maritime Projects on noise reduction in harbors (Ildar Urazghildiiev, United States & Gaetano Licitra, Italy).

Theme Area T13 - Acoustics education

This theme, lead by Frédéric Laville and Olivier Robin, included presentations from professionals with various involvements in acoustic education (practitioners, researchers, program directors, etc.) in all fields of Acoustics and for various audiences (K-University, workers, general public, etc.) with various needs. The goal was to share specific knowledge on (or experience with) a pedagogical approach, curriculum development or some educational tools so that conference participants (and future readers of the conference proceedings) will have elements to improve their own implication in acoustic education. The Structed Sessions were T13 SS01 - Education in Acoustics: catching attention or teaching in minutes using traditional or nontraditional media and methods (Olivier Robin, Canada) and T13 SS02 - Education in acoustics programs at all levels (K-8, K-12, undergraduate and graduate) (Frédéric Laville, Canada & Jean-Philippe Migneron, Canada).

Theme Area T14 - Musical Acoustics

This theme (quite new for ICSV) was lead by Gary Scavone and Caroline Traube and covered all aspects related to advancements in musical Acoustics, including but not limited to the following topics: modeling and analysis of musical instruments and the singing voice, analysis and synthesis of musical sounds, experimental techniques for sound and instrument characterization, psychoacoustics, music cognition, performance and pedagogy, new devices for music performance and interaction. The Regular Session was T14 RS01 - Musical Acoustics (Delphine Chadefaux, France) and the Structured Sessions were T14 SS01 - Vibroacoustics of musical instruments (Thomas Hélie, France & Marthe Curtit, France), T14 SS02 - Tools for musical instrument design and making (Jean-Pierre Dalmont, France), T14 SS03 - Biomechanical control of musical instrument (Caroline Traube, Canada), and T14 SS04 - Physical modeling of musical instruments and singing voice (Tamara Smyth, United States & Jean-François Petiot, France).

Theme Area T15 - Road and railway noise and vibration

This theme, lead by Georges Kouroussis and Konstantinos Vogiatzis, covered the broad issue of generation and propagation of sound and ground borne vibration from road and rail transport. Structured sessions were dedicated partly to the urban environment, with low speed rail bound transport and road transport. In addition, novel mitigation measures against noise from main roads, such as low noise pavements, were also highlighted. Recent developments such as the revision of EU type approval standards and the gradual increase of electric and hybrid vehicles were treated. The Regular Session was T15 RS01 - Railway noise and vibration

(Georges Kouroussis, Belgium & Wim van Keulen, Netherlands), while the Structured Sessions were T15 SS01 - Noise and vibration from transportation (Georges Kouroussis, Belgium & Wim van Keulen, Netherlands), and T15 SS02 - Vehicle noise, vibration and harshness (NVH)(Sifa Zheng, China).

Plenary lectures

Six plenary lectures on various acoustics and vibration topics were given by speakers from North America, Europe and Asia.

- Conventional and non-conventional porous materials for noise control: overcoming conventional limits (Pr R. Panneton, Canada)
- Unique vibration phenomena in high-speed, lightweight, compliant gears (Pr R. Parker, United States of America)
- Variability in speech and spoken word recognition: a short introduction (Pr M. Clayards, Canada)
- Noise transmission and absorption of lightweight structures: an overview and experience (Bilong Liu, China)
- Underground Acoustics (Rupert Thornely-Taylor, United Kingdom)
- Acoustical behavior of the bone-implant interface: from multiscale modeling to the patients bed (Guillaume Haiat, France)

2.4 The real website and online registration systems

The website placeholder was eventually replaced in March 2018 with an instance of the ICSV core website, a PHP-based site developed and carefully maintained by Dr. Sebastian Budzan, in tight collaboration with Prof. Marek Pawelczyk. While ICSV website was offering all the required features for attendees account creation, abstract submission, abstract review, paper submission, 2-rounds paper review, as well as theme area and session chairs management, its documentation was very light. The conference coordinator, Mrs. Nathalie Dabin, and the General and Technical Chairs spent a lot of time figuring out the various features and their use, calling from time to time Dr. Budzan to the rescue. One funny-moment was when Dr. Budzan had to fix the time-down counter math logic, as it was the first time in ICSV website history that the counter had to count for more than one year in advance! An alternative solution had to be found also, outside of ICSV website for the registration of ICSV26 delegates and the payment of their registration fees. That mandate was given to Opus-Agora, a local Professional Congress Organizer (PCO). Unfortunately, the lack of interoperability between the ICSV site and this later registration system, has forced a lot of manual conciliation, resulting in some delays (between registration and invoicing, between payment and receipt receiving, etc.) and headaches both for the ICSV26 Local Organizing Committee and the PCO in charge of the online and onsite registration of ICSV26 delegates.

The sponsors and exhibitors registration was handled very diligently and efficiently by Mr. Julien Biboud and Mrs Stéphanie Filteau, generously allocated to ICSV26 from Mecanum Inc. by Prof. Noureddine Atalla. Exhibitors also used the PCO registration systems, while Sponsors would directly deal with Mecanum.

3 The conference outcome

This section details the ICSV26 conference outcomes, from the scientific, human and environmental perspectives.

3.1 The Presentations

A total of 829 presentations were given within 15 theme areas, 45 structured sessions and 31 regular sessions.

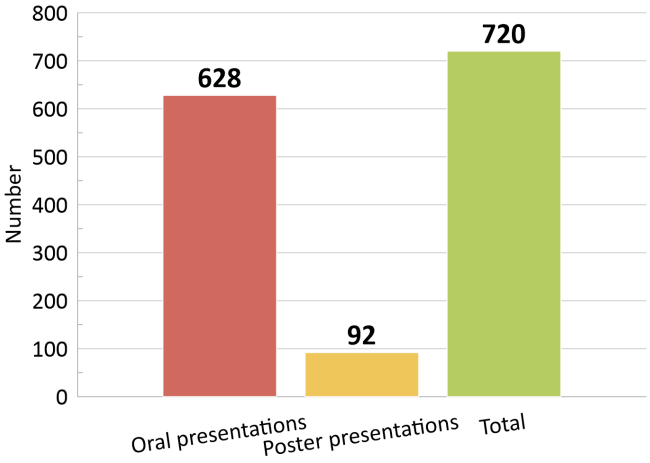

Figure 5: Distribution of presentations by type

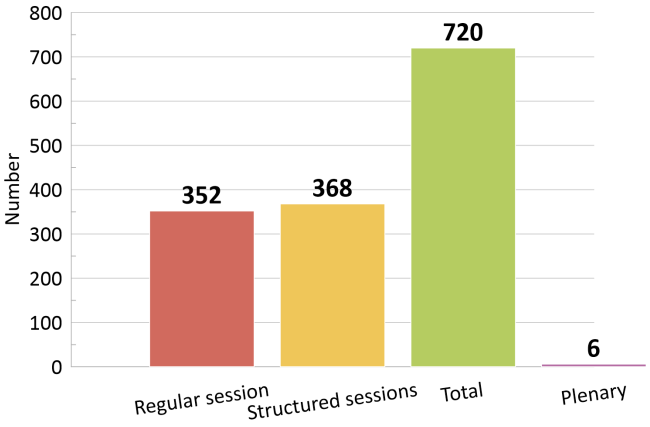

Figure 6: Distribution of presentations by session types

3.2 The Delegates

A total of 861 individuals participated in ICSV26, including delegates, exhibitors, accompaying persons and organizing team members.

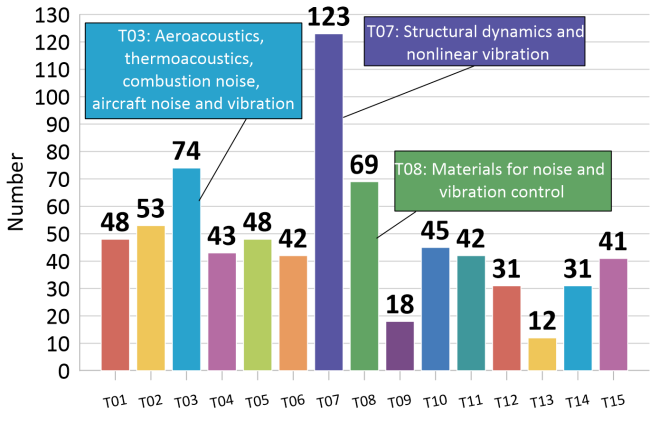

Figure 7: Distribution of presentations by theme area

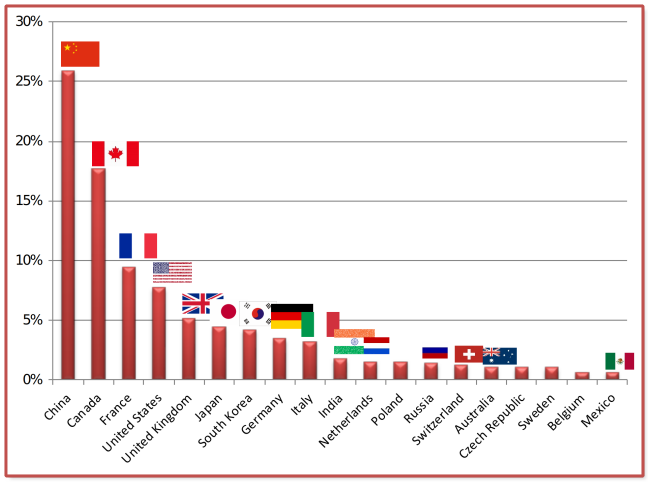

Figure 8: Countries and territories of origin of the ICSV26 delegate registrations.

3.3 The Awards Program

ICSV26 featured two Best Student Paper programs to recognise the best contributions from students presenting at the Congress. One was the usual Sir James Lighthill Best Student Paper Award, offered by IIAV for many years, and the other was a special one offered by IRSST.

Sir James Lighthill Best Student Paper Award

This Award was for the best paper published in the Proceedings of IIAV Annual International Congress on Sound and Vibration (ICSV) by a person in the early stages of his/her career. The Award was in the form of a certificate and backed by a cash sum of US$200. In addition, free membership of the IIAV, was to be given to the winners for one year. The author of the paper must either be a student or within the first five years of full-time employment. He/she need not be a member of the Institute. All papers had to be submitted by 31 March 2019. The criteria to be used by the Awards Committee were: the contribution to the advancement of scientific knowledge, originality, quality and industrial importance. The Award was presented at ICSV26 Award Ceremony for which the winners were gracefully invited by ICSV.

IRSST Best Student-Paper Award

The IRSST Best Student-Paper Award recognized the best papers related to noise and vibration in the field of Occupational Health and Safety (OHS), published within the Proceedings of the International Institute for Acoustics and Vibration (IIAV) Annual International Congress on Sound and Vibration (ICSV). Four (4) awards were to be won in the form of a cash prize of $500, for each selected paper. The author of the paper hod to be a regular student (undergraduate, graduate or postdoctoral candidate), enrolled at a Canadian academic institution and conducting research in the field of OHS. The author did not need to be a member of the IIAV. All papers had to be received by 31 March 2019, and satisfy the above eligibility criteria . The judging criteria for the papers were a) to be relevant to the field of occupational health and safety, b) to contribute to the advancement of scientific knowledge, c) to be deemed original, d) to be of good scientific quality and important for the field. The Award were handed out mainly on the basis of the quality of the written paper, and, to a lesser extent, on the quality of the oral presentation. This allowed the judging process to be completed before the start of the Congress. However, members of the Honours and Awards Committee verified that the quality of the oral presentation of the proposed winner was acceptable. Furthermore, candidates had to demonstrate by the way they presented the paper and answered audience's questions that they had made a substantial technical contribution to the presented paper.

The Award was presented at the ICSV26 Award Ceremony for which the winners were gracefully invited by ICSV.

Figure 9: Recipients of the Best Student-Paper Award with (from left to right) Mr. Simon Benacchio, Mr. Fabien Bonnet, Mr. Yu Luan and Mrs. Laurence Martin, surrounding Mr. Kannan Krishnan, IRSST's chief scientific officer (center).

3.4 The Volunteers

A total of 27 volunteers were recruited mostly within graduate students of faculty members from the Local Scientific Committee but also included two secondary students from a local summer internship program entitled "Classe Affaires" by MontrealReleve.ca.

Figure 10: Group picture of the team of volunteers involved in ICSV26 organisation (Jacob Bouchard-Roy missing, as busy setting up the Executive Board Room at the time of this picture).

3.5 The Scientific Visits

Three scientific visits were organized for ICSV26 delegates.

Visit 1 : Exclusive tour of CIRMMT

The Centre for Interdisciplinary Research in Music Media and Technology (CIRMMT pronounced "kermit") is housed at the Schulich School of Music at McGill University, just a couple blocks north of the ICSV26 venue. CIRMMT is a multidisciplinary research group that seeks to develop innovative approaches to the scientific study of music media and technology, to promote the application of newer technologies in science and the creative arts, and to provide an advanced research training environment. CIRMMT occupies a unique position on the international stage having developed intense research partnerships with other academic and research institutions, as well as diverse industry partners throughout the world. Several volunteers of the ICSV26 local scientific committee are regular members of CIRMMT and a special tour was arranged to let ICSV26 delegates discover this unique center, discover Polak & Schulish halls, and visit its new Music Multimedia Room.

Visit 2: Exclusive tour—ICAR

The ICAR laboratories (Infrastructure commune en acoustique pour la recherche ÉTS-IRSST) are housed at ÉTS (École de technologie supérieure), just a couple blocks away from the ICSV26 venue. ICAR is a training and research laboratory for industrial Acoustics. Its creation results from the successful collaboration between ÉTS university and IRSST occupational health research institute. ICAR allows to test, improve and develop new products or processes that are more acoustically efficient: industrial machines, tools, transportation vehicles, household appliances, acoustic materials and hearing protection devices. The ultimate goal of ICAR activities is to increase the comfort, health and safety of workers (and the general public) through the operation of state-of-the-art acoustic testing facilities that meet the needs of both industry and academic researchers. For logistic reasons, this exclusive tour was limited to 2 groups of 15 persons each.

Visit 3: Exclusive tour— MOEB

Emile Berliner's research led to the development and patenting of a microphone that Alexander Graham Bell acquired to improve his invention - the telephone. Berliner went on to work in Bell laboratory for 6 years before returning to his own research. On November 12, 1887 he received the patent for his invention: the gramophone, as well as for the process of creating the master and duplicating his flat disks. Without yet knowing it, he had forever changed the world of music. The Mission of the Museum is to collect, preserve, curate, research, depict, and exhibit audio artifacts, interpreting their significance — scientific and technical, social and cultural, historic and economic — to Quebec, Canada and the world i.e. made available to the widest possible public. With the Expo '67, industrial design in Canada was in full swing. Many Canadians were among the designers, that blossomed during the summer of the "Man and his world". Now, 50 years later, the MOEB celebrates a comeback of this era, rich in dashing creations. From that moment on, stereo systems featured a futuristic vibe, and at the MOEB you can experience many of these beautiful pieces following this trend. There are renowned talents such as Gordon Duern and Keith McQuarrie, creators of the "Apollo" series for Electrohome in Kitchener, in Toronto works Hugh Spencer on the creation of the "Project G" for Clairtone, and here in Montreal, Andre Morin catapults with his "forma" design RCA Victor into the space age. These objects by Canadian designers are yet another contribution to the world heritage of the 20th century. For logistic reasons, this exclusive tour of MOEB was also limited to 2 groups of 15 persons each.

3.6 Social events

Chair Dinner

As a little token of appreciation for their hard work and dedication, the Local Organizing Committee of ICSV26 offered a fine reception and dinner to all its Theme Area Chair, Sessions Chairs, Keynote speakers, and Local Organizing Committee members as well as to IIAV Executives and Directors, their guests and observers, and their accompanying persons.

Young Members Event

ICSV26 offered all its student members to gather for a flamenkuchen and beer experience at "Les 3 brasseurs" nearby restaurant. Volunteers (over 18 years old) were also invited to be part of the party.

IIAV Member Event

This off-site event started with a multimedia shows and vibrant collective experience, called "Through the Echoes". First production by Guy Laliberté since 2015, "Through the Echoes" made its world debut in Montreal. This spectacular odyssey was -a loud- and immense 60 minute show

by Gabriel Coutu-Dumont projecting you into a multimedia universe where one discovers the power of human connection. Guided by the stars, IIAV members explored the thread of space and time as in a waking dream. This was followed by a cocktail and seated dinner with some fine French-Canadian cuisine at the restaurant "L'Arrivage" within Pointe-à-Callière museum (the largest and most frequently visited history museum in Montréal).

Gala Banquet

After a funky aperitif with a lot of surprises, the fine seated dinner included the following speeches and award ceremonies: ICSV26 greetings (Prof Jérémie Voix, ICSV26 General Chair), The Doak Award for most successful paper in the Journal of Sound and Vibration (Awarded to Dr Eli Leinov by Prof. Andrei Metrikine, Editor-in-Chief, JSV), The IRSST Best Student-Paper Award (awarded by Mr. Kannan Krishnan, IRSST Scientific Director), the IIAV Student Travel Awards and Sir James Lighthill Best Student Paper Award (awarded by Prof. Eleonora Carletti, President IIAV) and the IIAV Honorary Fellowship (Awarded to Prof. Jean Nicolas by Prof. Alain Berry), and finally ICSV26 Thank You by Mr. Julien Biboud (CTO, Mecanum), ICSV26 Exhibition and Sponsors Manager, Dr. Franck Sgard, ICSV26 Scientific Chair, and Prof. Jérémie Voix, ICSV26 General Chair.

3.7 Business meetings

An event like ICSV26 is a unique opportunity to gather researchers, scientists, engineers, writers, policy makers in one central location over several days in the very versatile and functional venue. To maximise the efficient use of time of ICSV26 delegates, the ICSV26 Organizing Committee offered to existing and recognised working groups to hold their business meetings concurrently with the regular breakout scientific sessions. Business meetings were ideally to be open to all ICSV26 participants, pending proper online registration for the business meeting through the ICSV26 registration website. The executive boardroom utilized for these business meetings, was conveniently located at the heart of the Hotel Bonaventure, and featured a large executive table that can seat 15 persons and a second row of chair that can accommodate 20 others, for a total maximum of 35 persons (see Figure 11) as well as a screen and projector (not visible on picture in Figure 11).

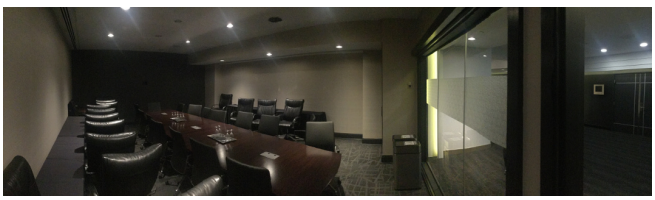

Figure 11: The executive business room within Hotel Bonaventure dedicated for Business Meetings offered to existing and recognized working groups by ICSV26 Organizing Committee.

Conveners of business meetings could also decide to restrict access to their events, by "invitation only". In such case, a special code was to be keyed in by participants to register online to such private satellite meetings. Finally, a special registration package was made available on ICSV26 online system for participants that were not registered for the full ICSV26 conference, and wanted to only attend one of these satellite meetings. The "business meeting registration" for non ICSV26 attendees included access to ICSV26 exhibitors' space, as well as either a morning coffee break, a buffet lunch or an afternoon coffee break. Several groups, such as the Journal of Sound and Vibration Editorial Advisory Board, the Department of National Defence impulse noise community of practice, and the IIAV Publications Committee Meeting, took advantage of that offer and unanimously reported a great satisfaction with the convenience of such arrangement.

3.8 Conference Sustainability Initiatives

Because we all care for the future of our planet, ICSV26 event featured several environmentally friendly initiatives, such as the reduced use of disposable and single-use items (electronic program, reusable dishes, etc.), the reduction of food waste (on-demand provisioning, leftovers to charities, etc.) and the general subscription to a carbon-offsetting program to limit the impact on the greenhouse-gas emission caused by our numerous jet travels. The organizers were confident that participants would support these initiatives and adapt their expectations accordingly. The Conference environmentally friendly initiatives were as follows:

- Use of an electronic program app, developed by company Sched.com, featuring detailed schedule, all abstracts, as well as direct links to conference proceedings
- Reduced use of disposable and single-use items (reusable dishes, no plastic bottles, electronic program, downloadable proceedings, etc.)
- Reduction of food waste (on demand provisioning, leftovers to Tablée des chefs charitable organization, etc.)
- Careful food and menu selection; use of fair-trade coffee beans
- Airport greeting team (from Tourisme Montreal) to facilitate the use of public transportation
- Subscription to "Fondation Gold Standard" certified carbon-offsetting program for all delegates travels (Certificate P-2019-10008, issued on 2019/09/19 by Planetair.ca)
- Eco-responsible Delegate Bags: locally made organic bag in 8 ounces polycoton twill, containing a notebook made from recycled fibers with organic soya-based ink, recycled plastic pen ecoresponsably produced, and a glass bottle of pure local maple syrup!
- Lanyards for badges generously lent by École de technologie supérieure and returned after the conference for reuse.

4 The Post-Mortem

The lessons learned are numerous and despite ICSV26 great success across the board, several things could have been done differently. They are presented below, together with the most important lesson to remember: "It's all about Pareto rule!"

4.1 Some lessons learned

- Set the deadlines wisely, avoiding overlaps with vacations or statutory holidays (who does really want to review abstracts on New Year's Eve?)
- Give specific criteria for reviewers (theme area chairs and session chairs) to make sure they are homogeneous
- Make sure from the very beginning that the scientific committees, theme area chairs and session chairs are aware of the incentives and rules regarding discounted registration rates
- Make sure that scientific chair can delegate sufficiently to theme area chairs
- Avoid database duplication, by having scientific submission (abstracts, articles), registration (payments), scheduling (app and online program) and presentation management system (for on-site presentation upload) be run -ideally- from the same system

4.2 It's all about Pareto rule

The biggest lesson of all, phrased in our words is that: **things have to be set early, but will only evolve at the last minute... and will be slightly late.**

The graph in Fig. 12 plots the cumulative number of abstracts received over time. It clearly shows that most of the submissions are made only a couple days before the first abstract submission deadline (Dec. 1st) and that an extra bundle is received a couple days before the extended deadline (Jan. 31st), that was announced mid-December 2018.

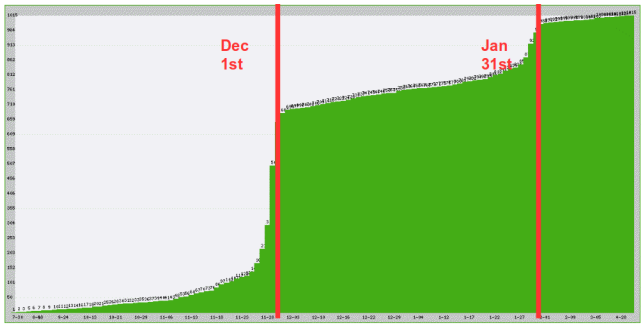

Figure 12: Cumulative number of received papers for ICSV26 conference, with first submission deadline (Dec. 1st) and extended one (Jan. 31st)

The "last minute" effect can be illustrated with the Pareto rule, also known as the 80/20 rule. Here the power law distribution of the number of abstracts received follows pretty tightly a Pareto distribution resulting an 85/15 outcome: on 299 papers received for the first deadline, 48 papers (or 16.05% of the total) were received over the first 90 days (or 84.99% of the 106 days period between opening and closing of the paper management system) and the remaining 251 papers were received in the remaining 16 days. It is also interesting to note that "85/15 rule" just defined is something felt by ICSV26 Local Organizing Committee in a lot of their duties: 85% of the registration difficulties are experienced by 15% of the participants; 85% of the program schedule changes are required by 15% of the chairs, etc.

The "slight delay" is the time period following the hard deadline (set here originally on Dec. 1st). The number of received paper will peak on that exact date, and then exponentially decrease over a couple of days, reaching no more submission after roughly 7 days. This suggests that attendees assume that "a couple of days" to "one week" late submissions are possible.

These two -very human- aspect are of key importance for proper conference organization and can not be overlooked: things get done at the last minute, but conference organizers should plan -long in advance- for it.

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