

CANADIAN ASSOCIATION  
ACOUSTICAL CANADIENNE  
ASSOCIATION D'ACOUSTIQUE

ACOUSTICS WEEK IN CANADA  
OCTOBER 3-6, 2023

**WELCOME TO MONTRÉAL !**



## CONFERENCE PROGRAM AND PRESENTATION SCHEDULE

### PROGRAMME ET HORAIRES

*Version du 27/09/2023*

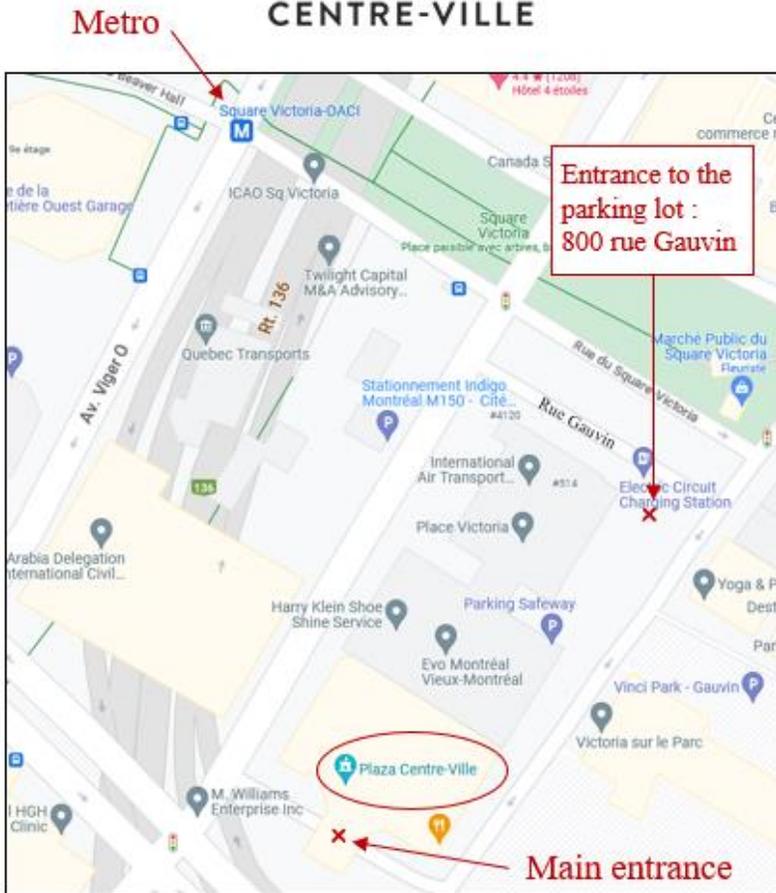
**Conference venue:** Plaza centre-ville: 777, boul. Robert-Bourassa,  
Montréal, QC, H3A 0B1

**Conference website:** <https://awc.caa-aca.ca>

# CONFERENCE PROGRAM

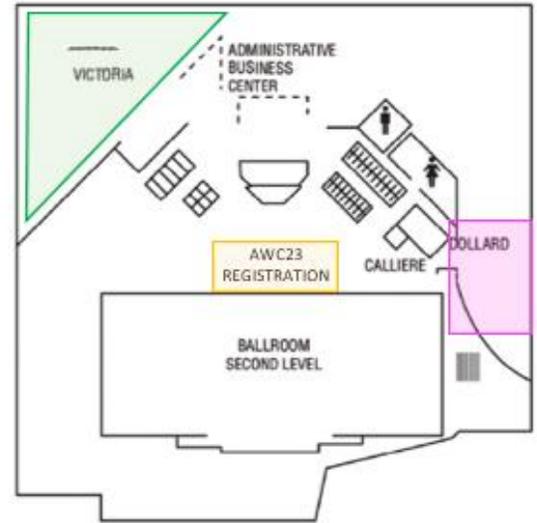
DAY 1		Tuesday October 3			
15:00-18:30	CAA Board of Directors (on invitation only); Room : DOLLARD				
18:00-20:30	Advanced Registration				
18:30-20:30	Welcome Reception (unlimited drinks between 18:30 and 20:00); Room: FOYER REGENCE ABC				
DAY 2		Wednesday October 4			
8:30-17:30	Exhibition / Trade show ; FOYER REGENCE ABC				
8:00-9:30	Continental Breakfast (coffee, tea, juices, croissants, muffins...) - FOYER REGENCE ABC				
8:50-9:00	Welcome Note; REGENCE BC				
9:00-10:00	<b>Keynote : Christian Giguère (Univ. of Ottawa);</b> REGENCE BC				
10:00-10:20	Coffee break - Supported by Dalimar - FOYER REGENCE ABC				
<b>Room</b>	REGENCE A	VICTORIA	CARTIER A	CARTIER B	
10:20-12:20	<b>Architectural and Building Acoustics</b>	<b>Hearing Protection</b>	<b>Speech and Hearing</b>	<b>Environmental Noise</b>	
12:20-13:20	Lunch - REGENCE BC				
13:20-15:00	<b>Architectural and Building Acoustics</b>	<b>Hearing Protection</b>	<b>Speech and Hearing</b>	<b>Education in Acoustics</b>	
15:00-15:20	Coffee break - Supported by HBK - FOYER REGENCE ABC				
15:20-17:20	<b>Architectural and Building Acoustics</b>	<b>Hearing Protection</b>	<b>Speech and Hearing</b>	<b>Artificial Intelligence in Acoustics</b>	
17:20-18:00	<b>General Acoustics</b>	<b>Speech and Hearing</b>		<b>Artificial Intelligence in Acoustics</b>	
18:15-20:00	Reception at EERS (open to all, on reservation only) / Beer&Pizza (only for students and volunteers)				
DAY 3		Thursday October 5			
8:30-17:00	Exhibition / Trade show ; FOYER REGENCE ABC				
8:00-9:30	Continental Breakfast (coffee, tea, juices, croissants, muffins...) - FOYER REGENCE ABC				
8:50-9:00	Welcome Note ; REGENCE BC				
9:00-10:00	<b>Keynote : Nouredine Atalla (Univ. of Sherbrooke);</b> REGENCE BC				
10:00-10:20	Coffee break - Supported by LogiSon - FOYER REGENCE ABC				
<b>Room</b>	REGENCE A	VICTORIA	CARTIER A	CARTIER B	
10:20-12:00	<b>Architectural and Building Acoustics</b>	<b>Hearing Protection</b>	<b>Speech and Hearing</b>	<b>Materials for noise and vibration control</b>	
12:00-13:00	Lunch - REGENCE BC				
13:00-15:00	<b>General Acoustics</b>	<b>Environmental Noise</b>	<b>Speech and Hearing</b>	<b>Materials for noise and vibration control</b>	
15:00-15:20	Coffee break - FOYER REGENCE ABC				
15:20-17:00	<b>General Acoustics</b>	<b>Aeroacoustics</b>	<b>Biomedical Acoustics</b>	<b>Materials for noise and vibration control</b>	
17:15-18:15	CAA Annual General Meeting (open to all CAA members) (REGENCE A)				
18:15-19:00	Coktail ( FOYER REGENCE ABC) + PowerPoint Karaoke (REGENCE A)				
19:00-21:30	Gala Banquet - Supported by Pliteq (included to all delegates with the 3-day registration) (REGENCE BC)				
21:30-22:30	Music Jam Session (open to all)				
DAY 4		Friday October 6			
8:00-9:30	Continental Breakfast (coffee, tea, juices, croissants, muffins...) - FOYER REGENCE ABC				
8:50-9:00	Welcome Note ; REGENCE BC				
9:00-10:00	<b>Keynote : Fabrice Marandola (Univ. McGill);</b> REGENCE BC				
10:00-10:20	Coffee break - Supported by EERS; FOYER REGENCE ABC				
<b>Room</b>	REGENCE A	VICTORIA	CARTIER A	CARTIER B	
10:20-12:20	<b>General Acoustics</b>	<b>Environmental Noise</b>	<b>Underwater Acoustics</b>	<b>Materials for noise and vibration control</b>	
12:30-13:00	Award Ceremony and Closing Remarks				
12:20-13:20	Lunch - REGENCE BC				
14:00-16:00	Visit 1: Exclusive tour of CIRMMT (reservation required) Visit 2 : Exclusive tour ICAR (reservation required) Visit 3 : Exclusive visit of the Maison symphonique (reservation required)				

# MAP OF THE CONFERENCE CENTER

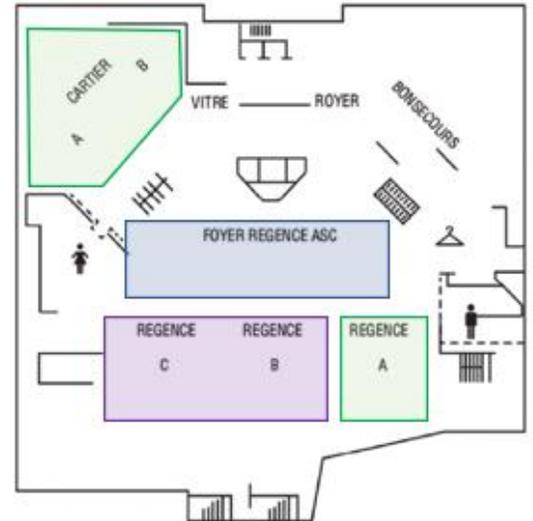


- Plenary, lunch and gala
- Breakout rooms
- Exhibition area and coffee break
- AWC23 registration
- Directors' meeting room

C1 FLOOR 1<sup>st</sup> floor below lobby



C FLOOR 2<sup>nd</sup> floor below lobby



Parking is easy there, as is access to public transportation and the Central Station.  
 Plaza centre-ville: 777, boul. Robert-Bourassa, Montréal, QC, H3A 0B1  
 Parking lot entrance: 800 rue Gauvin  
 Web site: <https://plazapmg.com/plaza-centre-ville/>

## ARCHITECTURAL AND BUILDING ACOUSTICS

Chair: Wilson Byrick (Pliteq), Joonhee Lee (Concordia) and Mahn Jeffrey (CNRC)

### Wednesday October 4

- **Room REGENCE A**

- 10:20-10:40 *Apparent Transmission Loss through Stud Walls with Mass Timber Flanking Assemblies*  
**Jeremy Thorbahn**
- 10:40-11:00 *Repeatability and Reproducibility of Apparent Sound Transmission Class (ASTC) Measurements*  
**Henning Schlechtriem**
- 11:00-11:20 *Case study: variation in ASTC ratings with loudspeaker position when using directional loudspeakers*  
**Anil Joshi**
- 11:20-11:40 *Comparison of predicted and measured ASTC in a mass timber structure*  
**Sarah Mackel**
- 11:40-12:00 *Airborne Sound Transmission in Cross-Laminated Timber Buildings: The Influence of Building Height*  
**Erik Nilsson, Sylvain Ménard, Delphine Bard**
- 12:00-12:20 *Incidence des mureaux d'un mur-rideau sur l'indice ASTC de cloisons intérieures*  
**Julien Fenninger**

### LUNCH

- 13:20-13:40 *Recent Experience in the Design of Music Recital Halls*  
**Bill John Gastmeier, Mandy Chan**
- 13:40-14:00 *Acoustique d'un établissement hospitalier – l'agrandissement du Centre hospitalier de l'Université de Montréal (CHUM)*  
**Vincent Chavand**
- 14:00-14:20 *The Acoustical Challenges for Modular Buildings used for Residential Purposes*  
**Paul Marks**
- 14:20-14:40 *Amplifying Change for Music Venues in Montreal: Rethinking the Technical Regulatory Framework Towards Harmonious and Sustainable Nightlife*  
**Romain Dumoulin**
- 14:40-15:00 *Quantifying the reduction in sound insulation and speech privacy in offices due to typical design and workmanship errors*  
**Roderick KT Mackenzie**

### COFFEE BREAK

- 15:20-15:40 *Critical Importance of Acoustical Design in New Developments*  
**Zoe Razavi**
- 15:40-16:00 *Publication of a new guide from the Gouvernement du Québec about noise protection of dwellings*  
**Jean-Philippe Migneron, Jean-Gabriel Migneron, André Potvin**
- 16:00-16:20 *Acoustic properties of High-Rise Wood Residential Buildings*  
**Raphaël Duée, Hugo Vasseur**
- 16:20-16:40 *Acoustic Design of Floor Ceiling Assemblies in High Seismic Zones*  
**Aedan Callaghan, William Thrall**
- 16:40-17:00 *Physical and perceptual comparison between single and multiple diffraction for thick edge*  
**Clément Girin, Alain Berry, Philippe-Aubert Gauthier, Louis-Xavier Buffoni**
- 17:00-17:20 *Apparent Impact Insulation Class (AIIC) Testing of Various Roof Terrace Assemblies and Evaluating the Need for Additional Mitigation*  
**Jessica Tsang**
- 17:20-17:40 *Online evaluation of floor impact sounds: who is more likely to be annoyed? Canadians, Germans or Koreans?*  
**Sabrina Skoda, Markus Müller-Trapet, Young-Ji Choi, Iara Batista da Cunha, Jeffrey Mahn**
- 17:40-18:00 *Field measurement and finite element modeling of vibration propagation from heavy hard impacts on fitness flooring*  
**Giulio Puglielli, Simon Edwards, Brian Howe**

## Thursday October 5

- **Room REGENCE A**

- 10:20-10:40 *Contextualizing Speech Privacy Criteria in WELL/LEED Guidelines*  
**Dorsa Fardaei**
- 10:40-11:00 *Speech level variations by office type and work environments*  
**Rewan Toubar, Roderick Mackenzie, Joonhee Lee**
- 11:00-11:20 *Evaluating Ambient Noise and Reverberation in Classrooms: A Case Study of a Native school*  
**Daniel Paromov, Victoria Duda, Julie McIntyre, Phaedra Royle, Adriana Lacerda**
- 11:20-11:40 *Novel Method for Reverberation Time Measurements in Natatoriums*  
**Adam Collins**
- 11:40-12:00 *Noise and sleep quality of aging adults -- an open question*  
**Iara B Cunha, Ashley Nixon, Jennifer A Veitch, Hiroshi Sato, Jeffrey Mahn, Markus Müller-Trapet, Sabrina Skoda**

## HEARING PROTECTION

*Chair: Hugues Nélisse (IRSST) and Franck Sgard (IRSST)*

*This session is organized in memory of our colleague and friend Simon Benacchio [1988-2023], who worked with fervor on the enhancement of artificial ears and hearing protectors.*



## Wednesday October 4

- **Room VICTORIA**

- 10:20-10:40 *Effect of aging on the ear canal morphology: measurements on human subjects*  
**Robin Petit, Pierre Buysse, Gwenolé Nexer**
- 10:40-11:00 *Effect of aging on the ear canal morphology: a large scale study*  
**Pierre Buysse, Robin Petit, Gwenolé Nexer**
- 11:00-11:20 *Statistical Shape Modeling of the Human Ear Canal for Designing Hearing Protection Devices and Auditory Wearables*  
**Farshid Ghezlbash, Katrin Braun, Amir Jafari Bidhendi, Jacob Bouchard-Roy**
- 11:20-11:40 *Functional discomfort of earplugs and its influencing variables*  
**Bastien Poissenot-Arrigoni, Alessia Negrini, Djamel Berbiche, Franck Sgard, Olivier Doutres**
- 11:40-12:00 *Evaluating Mechanical Comfort of Ear Tips: An Experimental-Computational Approach*  
**Amir J Bidhendi, Katrin Braun, Jacob Bouchard-Roy, Farshid Ghezlbash**

12:00-12:20 *Experimental investigation of the static mechanical pressure induced by roll-down foam earplugs*  
**Luiz G. C. Melo, Ahmed Dalaq, Franck Sgard, Olivier Doutres, Éric Wagnac**

#### LUNCH

13:20-13:40 *3D printed meta-earplug for minimizing the occlusion effect*  
**Kévin Carillo, Franck Sgard, Olivier Dazel, Olivier Doutres**

13:40-14:00 *Design considerations to optimize occlusion effect mitigation with Acoustic Noise Cancelling hearing protection*  
**Vincent Nadon**

14:00-14:20 *Assessment of the effect of earplug type, insertion depth and background noise level on the occlusion effect in laboratory conditions*  
**Hugo Saint-Gaudens, Hugues Nélisse, Franck Sgard, Olivier Doutres**

14:20-14:40 *Bandwidth extension of in-ear speech through machine learning-based dynamic equalization*  
**Ajin Tom, Antoine Bernier**

14:40-15:00 *Finite element simulation of the ear canal wall vibrations*  
**Simon Kersten, Chalotorn Möhlmann, Michael Vorländer**

#### COFFEE BREAK

15:20-15:40 *Effects of the Hardness of Acoustic Test Fixtures' Ears on the Evaluation of Earplug's Direct Transmissions Facing High-Level Impulse Noises*  
**Cyril Blondé-Weinmann, Pascal Hamery, Véronique Zimpfer, Thomas Joubaud**

15:40-16:00 *Development of a realistic artificial ear dedicated to earplugs attenuation measurements*  
**Said Ezzaf, Luiz Melo, Bastien Poissenot-Arrigoni, Hugo Saint-Gaudens, Alain Berry, Franck Sgard, Olivier Doutres**

16:00-16:20 *Measurements in the open and closed ear canal: comparison between different artificial head concepts*  
**Véronique Zimpfer, Cyril Blondé-Weinmann, Pascal Hamery, Thomas Joubaud, Franck Sgard**

16:20-16:40 *Time domain numerical investigation to assess noise reduction allowed by a non-linear passive earplug facing impulse noises.*  
**Christophe Ruzyla, Pascal Hamery, Sébastien Roth, Cyril Blonde-Weinmann**

16:40-17:00 *On the Use of Wide Dynamic Range Compression and Other Algorithms to Improve Hearing Protection of Workers with Hearing Impairment: A Preliminary Study on Speech Intelligibility*  
**Solenn Ollivier, Hugues Nélisse, Jérémie Voix**

17:00-17:20 *Towards Adjustable Loudness Compensation in Hearing Protectors for Musicians*  
**Elliot Drees, Eugénie Segers, Caroline Traube, Jérémie Voix**

### Thursday October 5

#### • Room VICTORIA

10:20-10:40 *Source-separated dosimetry in an active hearing protection device*  
**Max Henry**

10:40-11:00 *Providing focused hear-through on active hearing protection devices using dipole and omnidirectional outer-ear microphones.*  
**Hugo Besnard**

11:00-11:20 *Binaural Beamformer: An early Proof of Concept for Wearables Audio Devices*  
**Stéphane Dedieu, Thomas Padois, Jérémie Voix**

11:20-11:40 *The effect of training material on the personal attenuation rating achieved by an initially untrained population*  
**Lucas Carneiro, Lydia Behtani, Antoine Bernier**

11:40-12:00 *Development of the subjective evaluation method of hearing protectors*  
**Farhad Forouharmajd, Adrian Fuente, Hadi Asady, Siamak Pourabdian**

## SPEECH AND HEARING

Chair: Victoria Duda (U. de Montréal) and Rachel Bouserhal (ÉTS)

### Wednesday October 4

- **Room CARTIER A**

- 10:20-10:40 *A 3D voice-hearing simulator co-created by voice hearers and researchers: preliminary sound quality evaluation*  
**Philippe-Aubert Gauthier, Kevin Zemmour, Sylvain Grignon, Bálint Demers, Catherine Lejeune, Sandrine Rousseau, Mouloud Boukala, Sofian Audry, Sylvio Arriola, Alain Berry, Kevin Whittingstall**
- 10:40-11:00 *Timing of perioral muscle suppression in smiled speech*  
**Yadong Liu, Kyra Hung, Melissa Villasenor, Shannon Colcleugh, Eunhee Chung, Bryan Gick**
- 11:00-11:20 *Biomechanical Simulation of Lateral Asymmetry in Tongue Bracing*  
**Jasia Azreen, Connor Mayer, Yadong Liu, Arian Shamei, Ian Stavness, Bryan Gick**
- 11:20-11:40 *Tongue Adjustments in the Chest-Head Register Transition of Operatic Singers*  
**Grace Bengtson, Elena Massing, Cindy Zhao, Maria Samarskaya, Jahurul Islam, Bryan Gick**
- 11:40-12:00 *VOT Analysis of L1 and L2 Speakers of Itza'*  
**Jack Mahlmann**
- 12:00-12:20 *Perceptual compensation of intrinsic F0 effects in English monolingual speakers*  
**Connie Ting, Meghan Clayards**

#### LUNCH

- 13:20-13:40 *Articulation and Acoustics of Korean Liquids: A Case Study in Loanword Adaptation*  
**Naim Lim, Alexei Kochetov, Yoonjung Kang**
- 13:40-14:00 *Vowel articulation in closed-skull concussion patients with no language impairment*  
**Arian Shamei, Bryan Gick**
- 14:00-14:20 *Prenasal coarticulation and allophonic merger of /i/ and /e/ across dialects of English*  
**Irene Smith, Morgan Sonderegger**
- 14:20-14:40 *Variation in articulation rate in new brunswick french*  
**Wladyslaw Cichocki, Luke Hagar, Yves Perreault**
- 14:40-15:00 *Creaky voice in Canadian English: An acoustics-focused method*  
**Jeanne Brown**

#### COFFEE BREAK

- 15:20-15:40 *The acoustics of borrowed /ʁ/ in Quebec French*  
**Massimo Lipari**
- 15:40-16:00 *Speech rate effects on length distinctions in Japanese vowels and stops*  
**Hironori Katsuda, Yoonjung Kang**
- 16:00-16:20 *The Glottal Stop in Garo*  
**Chemam Baira A'gitok**
- 16:20-16:40 *Acoustic variation in speech: Contrasting initial and later stages of conversations showing opinion convergence and divergence*  
**Charlize Ma, Jahurul Islam, Effie Kao, Raechel Kitamura, Stephanie Wang, Marcell Maitinsky, Bryan Gick**
- 16:40-17:00 *Size of velopharyngeal opening and nasality measurements from acoustic features*  
**Jahurul Islam, Bryan Gick**
- 17:00-17:20 *Elimination of Nasality in Typical Speakers Using Forward Voice Focus, Phonetic Replacement, and Biofeedback*  
**Somayah Al-Ees, Tim Bressmann**
- 17:20-17:40 *Acoustic Analysis for Automatic Identification and Classification of Nasality in Simulated Oral-Nasal Balance Conditions using only the nasal speech signal*  
**Fatemeh Abnavi, Heather Flowers, Hilmi Dajani, Suzy Ahn, Tim Bressmann**
- 17:40-18:00 *The temporal modulation of infant directed speech and the role of positive affect*  
**Samin Moradi, Linda Polka**

## Thursday October 5

### • Room CARTIER A

- 10:20-10:40 *A new individualized, ecological and immersive approach to measuring noise-related annoyance: feasibility study*  
**Pierre H Bourez, Guillaume T Vallet, François Bergeron, Nathalie Gosselin, Philippe Fournier**
- 10:40-11:00 *Hearing Health in Remote Quebec: A Case Study from a Native School*  
**Daniel Paromov, Victoria Duda, Julie McIntyre, Phaedra Royle, Adriana Lacerda**
- 11:00-11:20 *Tinnitus residual inhibition through contralateral acoustic stimulation*  
**Bérangère Margaux Villatte, Arnaud Norena, Sylvie Hébert**
- 11:20-11:40 *Improving the detectability of alarms by adding high harmonics*  
**Connor Wessel, Michael Schutz**
- 11:40-12:00 *Classifying sounds encountered in two million YouTube videos: Insights for the future of auditory perception research*  
**Andrés E. Elizondo López, Michael Schutz**

### LUNCH

- 13:00-13:20 *Investigating Gender Differences in the Perception of Human Infant Vocalizations as a Cuteness Component*  
**M. Fernanda Alonso Arteche, Leatisha Ramloll, Lucie Menard, Linda Polka**
- 13:20-13:40 *A listening effort based comparative Analysis of CROS Hearing Aids and Bone-Anchored Hearing Devices for Single-Sided Deafness Patients*  
**Olivier Valentin, François Prévost, Don Luong Nguyen, Alexandre Lehmann**
- 13:40-14:00 *Development of a Method to Assess In-Ear Speech Intelligibility Through Listening Effort*  
**Alexis Pinsonnault-Skvarenina, Philippe Chabot, Ajin Tom, Antoine Bernier**
- 14:00-14:20 *The Analysis of Speech Perception with the Use of Hearing Protection Earplugs using the Canadian Digit Triplet Test*  
**Ahmed El Mawazini**
- 14:20-14:40 *Electroacoustic performance of alternative listening devices: candidates for individuals with mild to moderate hearing loss?*  
**Alexis Pinsonnault-Skvarenina, Fabien Bonnet, Mathieu Hotton, Hugues Nélisse, Jérémie Voix**
- 14:40-15:00 *Psychoacoustic parameters and ear canal role*  
**Hadi Asady, Siamak Pourabdian, Adrian Fuente, Mehdi Jalali, Ali Ahmadi, Fatemeh Ansari, Farhad Forouharmajd**

## MATERIALS FOR NOISE AND VIBRATION CONTROL

*Chair: Thomas Dupont (ÉTS) and Raymond Panneton (U. of Sherbrooke)*

## Thursday October 5

### • Room CARTIER B

- 10:20-10:40 *Assessment of equivalent properties for multilayered panels*  
**Diego Martin Tuozzo, Nouredine Atalla**
- 10:40-11:00 *On the use of condensation models for describing highly damped multilayered structures*  
**Rafael da Silva Raqueti, Nouredine Atalla, Morvan Ouisse, Emeline Sadoulet-Reboul**
- 11:00-11:20 *Adding layers of gypsum board inside the cavity of double stud walls. A sound idea?*  
**Jeffrey Mahn, Sabrina Skoda, Markus Müller-Trapet, Iara Cunha**
- 11:20-11:40 *Added viscous damping of a microperforated plate in a acoustic non-linearity regime*  
**Lucie Gallerand, Mathias Legrand, Thomas Dupont, Raymond Panneton, Philippe Leclaire**
- 11:40-12:00 *In-situ measurement of acoustic impedance in presence of grazing flow*  
**Xukun Feng, Zacharie Laly, Nouredine Atalla**

### LUNCH

- 13:00-13:20 *CFD simulations of the static airflow resistivity of a perforated solid: effects of size and flow velocity*  
**Alla Eddine Benchikh Lehocine, Tenon Charly Kone, Maël Lopez, Raymond Panneton, Thomas Dupont, Kévin Verdière**
- 13:20-13:40 *Engineered materials for acoustics (EMA): Metamaterials, sonic crystals and calculated microstructures*  
**Raymond Panneton**
- 13:40-14:00 *Investigations on a periodic acoustic metamaterial for multi-tonal noise attenuation*  
**Zacharie Laly, Christopher Mechefske, Sebastian Ghinet, Behnam Ashrafi, Charly T. Kone**
- 14:00-14:20 *On the use of weakly coupled absorber for low frequency sound absorption*  
**Mohamed Amin Ben Lassoued, Edith Roland Fotsing, Annie Ross**
- 14:20-14:40 *Sonic Crystal Acoustic Attenuation Applied to Exhaust Air Systems*  
**Jeremy Plé, Tenon Charly Kone, Allaeddine Benchikh Lehocine, Raymond Panneton**
- 14:40-15:00 *Bragg bands generation in beams and plates for mass reduction and vibroacoustic performance*  
**Nicolas Bohmwald, Vania Gonzalez, Olivier Robin, Viviana Meruane**

#### COFFEE BREAK

- 15:20-15:40 *Acoustic metamaterials for low-frequency noise reduction: a review*  
**Niloofar Rastegar Dehkordi, Davide De Cicco, David Vidal, Annie Ross**
- 15:40-16:00 *Method for characterizing the acoustic properties of thin metamaterials capable of attenuating broadband noise at low frequencies*  
**Tenon Charly Kone, Sebastian Ghinet, Raymond Panneton, Anant Grewal**
- 16:00-16:20 *Finite element study of perfect sound absorbing porous material with periodic conical hole profile*  
**Zacharie Laly, Nouredine Atalla, Raymond Panneton, Sebastian Ghinet, Christopher Mechefske**
- 16:20-16:40 *Mass-spring model for a resonant metamaterial at high sound pressure level*  
**Maël Lopez, Alla Eddine Benchikh Le Hocine, Charly Tenon Kone, Thomas Dupont, Raymond Panneton**
- 16:40-17:00 *Creating optimized sound-proofing structure via concentrated emulsions*  
**Mina Saghaei, Annie Ross, Edith-Roland Fotsing, Louis Fradette**

#### Friday October 6

- **Room CARTIER B**

- 10:20-10:40 *Development of an eco-acoustic absorber based on local recycled granular materials*  
**Islam Ben Amara, Raymond Panneton, Richard Gagné**
- 10:40-11:00 *Novel acoustic materials made from wood processing residues*  
**Suzhou Yin**
- 11:00-11:20 *Waste corn husk fibers for sound absorption applications*  
**Umberto Berardi**
- 11:20-11:40 *Mycelium based acoustic panels*  
**Alexis Boisvert, Saïd Elkoun, Olivier Robin, Félix-Antoine Bérubé Simard**
- 11:40-12:00 *Acoustic properties of cork fiber reinforced micro-perforated panel made with polylactic acid through additive manufacturing*  
**Umberto Berardi**
- 12:00-12:20 *Predicting Acoustic Absorption in Additively Manufactured Porous Microlattices: A Sensitivity Analysis Approach*  
**Ayoub Ait Aariba**

## GENERAL ACOUSTICS

*Chair: Viken Koukounian (Parklane), Mathias Legrand (McGill) and Thomas Padois (IRSST)*

### Wednesday October 4

- **Room VICTORIA**

- 17:20-17:40 *Turbulence Distortion Effect on Leading Edge Noise from Wind Turbine Blades*  
**Vasishtha Bhargava Nukala, Chinmaya Prasad Padhy**
- 17:40-18:00 *Characterization and sustainable acoustic correction of the mosque. Case study of two mosques in Constantine, Algeria*  
**Zohra Bemaghsoula Hammou**

### Thursday October 5

- **Room REGENCE A**

- 13:00-13:20 *Value Engineering 'acoustics' into projects*  
**Michael Bolduc, Viken Koukounian**
- 13:20-13:40 *On the robustness of a decoupling procedure used in conjunction with an indirect method to assess the full mobility of an aircraft hydraulic pump*  
**Simon Prenant, Thomas Padois, Manuel Etchessahar, Olivier Doutres**
- 13:40-14:00 *A criterion based on the calculation of a solid angle to assess the quality of acoustic images obtained with a spherical microphone array*  
**Kevin Rouard, Julien St-Jacques, Olivier Doutres, Franck Sgard, Hugues Néglise, Loic Boileau, Alain Berry, Nicolas Quaegebeur, François Grondin, Thomas Padois**
- 14:00-14:20 *Influence of the scattering effect on acoustic image obtained with a spherical microphone array*  
**Julien St-Jacques, Kevin Rouard, Franck Sgard, Hugues Néglise, Alain Berry, Nicolas Quaegebeur, François Grondin, Loic Boileau, Olivier Doutres, Thomas Padois**
- 14:20-14:40 *Robust Continuous Health Monitoring and Occupational Safety with Hearables*  
**Alexandre Petrosky, Jérémie Voix, Rachel Bouserhal**
- 14:40-15:00 *Digital Earplug Featuring Combined Noise Dosimetry and Electrocochleography: a Proof of Concept*  
**Adélaïde Douchet, Alexis Pinsonnault-Skvarenina, Gabrielle Crétot-Richert, Malo Richard, Valentin Pintat, Jérémie Voix**

### COFFEE BREAK

- 15:20-15:40 *Assessing automatic musical mode extraction*  
**Konrad Swierczek, Michael Schutz**
- 15:40-16:00 *Use of Carillons in Building New Musical Instruments*  
**Rama Balike Bhat**
- 16:00-16:20 *Detectability and Reducing Annoyance of Alarm Design Using Acoustic Structures of Musical Instruments*  
**Andres Eugenio Elizondo Lopez, Joeseoph Schlesinger, Michael Schutz**
- 16:20-16:40 *Dynamics of Harmonic Active Sound Control with a Harmonic Acoustic Pneumatic Source*  
**Alexandre Schiavini**
- 16:40-17:00 *Rigid body motion of nail guns: modal analysis and 2D dynamic modelling*  
**Maxime Vincent, Marc-André Gaudreau, Thomas Dupont, Pierre Marcotte**

### Friday October 6

- **Room REGENCE A**

- 10:20-10:40 *Étude sur la fréquence d'apparition d'aptonymes acoustiques et musicaux en France métropolitaine*  
**Odile Clavier, Nicolas Trompette, Stéphanie Viollon, Jérémie Voix**

- 10:40-11:00 *Characterization of Typical Music Activities in China: Identification, Classification and Quantification*  
**Chang Miao**
- 11:00-11:20 *How Does Interpretation of Acoustic Features Affect Perceived Musical Emotion?*  
**Cameron Anderson, Jamie Ling, Michael Schutz**
- 11:20-11:40 *Deaf Gain: Enhancements in vibrotactile rhythm perception for Deaf individuals*  
**Sean Alexander Gilmore, Frank Russo**
- 11:40-12:00 *Sign Language Handshapes, Similarly to Speech Sounds, Exploit Biomechanical Endpoints*  
**Oksana Tkachman, Shannon Hsu, Maria Samarskaya, Cindy Zhao, Bryan Gick**
- 12:00-12:20 *Preliminary numerical and experimental studies of active acoustic control of double-glazed partition walls*  
**Jonathan Mifundu Nzengi, Pierre Grandjean, Alain Berry, Philippe Micheau** *Increasing*

## **ENVIRONMENTAL NOISE**

*Chair: Anthony Gérard (Soft dB), Olivier Robin (U. of Sherbrooke) and Joana Rocha (Carleton University)*

### **Wednesday October 4**

- **Room CARTIER B**

- 10:20-10:40 *Relationship Between Community Complaints and Noise Level During the Construction of a Large Road Infrastructure in Montréal*  
**Alexis Pinsonnault-Skvarenina, Véronique Guay, Renaud Leblanc-Guindon, Mathieu Carrier, Tony Leroux**
- 10:40-11:00 *Effective Methods for Reducing Construction Noise in Densely Populated Environment*  
**Loic Sauvageot**
- 11:00-11:20 *Design and dissemination of environmental noise maps: recommendations for the province of Québec*  
**Frédéric Hubert, Jean-Philippe Migneron**
- 11:20-11:40 *Urban noise observatory and management tool - Application to Quebec case*  
**Raphaël Duée, Paul Otis-Bouchart D'Orval, Djesone Gomis**
- 11:40-12:00 *Noisemonitor: A Python Package for Sound Level Monitor Analysis*  
**Valérian Fraisse**
- 12:00-12:20 *The introduction of Acoustics in Environmental, Social and Governance (ESG) frameworks*  
**Viken Koukounian, Ethan Bourdeau, Michael Bolduc**

### **Thursday October 5**

- **Room VICTORIA**

- 13:00-13:20 *Challenges of Road Noise Prediction Methods in Canada*  
**Petr Chocensky**
- 13:20-13:40 *Designing and Evaluating Public Space Sound Installations: a Collaborative Research-Creation Approach*  
**Valérian Fraisse, Étienne Legast, Simone D'Ambrosio, Catherine Guastavino**
- 13:40-14:00 *Lessons Learned Monitoring Near and Further From Wind Turbines*  
**William Keith Gregory Palmer**
- 14:00-14:20 *Auralisation: a valuable consultation and engagement tool for infrastructure projects – case study of airspace change for a regional airport*  
**Vincent Jurdic, Calum Sharp, David Hiller, Ryan Biziorek, Caroline Harvey**
- 14:20-14:40 *Bridging the gap between sound and non-sound professionals with virtual reality*  
**Richard Yanaky, Catherine Guastavino**
- 14:40-15:00 *Effect of acoustic treatment and table dividers on diners' experience in a Montreal restaurant*  
**Catherine Guastavino**

## Friday October 6

- **Room VICTORIA**

- 10:20-10:40 *Vibration Impacts of Tunneling in Transit Construction*  
**Christopher Bosyj**
- 10:40-11:00 *Manufacturers' Sound Data – Application Experiences*  
**Pier-Gui Lalonde**
- 11:00-11:20 *Is Friday the new Saturday? The impact of using standard traffic distribution models for Friday traffic data on noise assessment*  
**Kathryn Joanne Katsiroumpas, Morgan Austin**
- 11:20-11:40 *Impact of Speed and Throttle Adjustments on FTA Noise Model in Transit Rail Analysis Including Case Study*  
**Ian Matthew, Anthony Amarra**
- 11:40-12:00 *Predicting the noise impact of large-scale battery storage sites in Ontario*  
**Hillary Fung**

## ARTIFICIAL INTELLIGENCE IN ACOUSTICS

*Chair: François Grondin (U. of Sherbrooke)*

## Wednesday October 4

- **Room CARTIER B**

- 15:20-15:40 *Enhancing Noise Management Through Siamese Convolutional Neural Networks For Identification Of Principal Sound Sources*  
**Jean-Pierre Côté, Marc-André Gaudreau, Sousso Kelouwani**
- 15:40-16:00 *Wall-Pressure Spectrum Model Based on Artificial Neural Networks Predictions*  
**Andrea Arroyo Ramo, Michaël Bauerheim, Stéphane Moreau**
- 16:00-16:20 *Deep Learning-Based Approach for Acoustic Source Localization in Turbulent Flows*  
**Arnav Joshi, Jean-Pierre Hickey**
- 16:20-16:40 *Use of Logistic Regression Models as a Supervised Learning Algorithm to Identify Impulsive Sounds in Monitored Sound Data*  
**Harry Ao Cai**
- 16:40-17:00 *Accuracies in algorithmic predictors of musical emotion*  
**Jackie Zhou, Cameron Anderson, Michael Schutz**
- 17:00-17:20 *Enhancing Automatic Speech Recognition of a Regional Dialect: A Pilot Study with Québécois French*  
**Xinyi Zhang, Lucia Eve Berger, Duc-Hoa Tran, Rachel Bouserhal**
- 17:20-17:40 *Modeling of field sound insulation for multi-layered CLT floor assemblies using artificial neural networks*  
**Mohamad Bader Eddin, Sylvain Ménard, Delphine Bard Hagberg, Jean-Luc Kouyoumji**
- 17:40-18:00 *Detecting ringed seal vocalizations using deep learning*  
**Karlee Zammit, William Halliday, Fabio Frazao, Stan Dosso**

## UNDERWATER ACOUSTICS

*Chair: Pierre Cauchy (Université du Québec à Rimouski)*

### Friday October 6

- **Room CARTIER A**

- 10:20-10:40 *Assessment of Propeller Cavitation Inception Speed Based on Onboard Vibration Data*  
**Kamal Kesour, Paul Camerin, Jean-Christophe Gauthier Marquis, Cédric Gervaise**
- 10:40-11:00 *Multi-Domain Approach for Prediction of Vortex-Induced Hull Pressure Fluctuations on a Model-Scale Ship*  
**Duncan McIntyre, Shameem Islam, Peter Oshkai**
- 11:00-11:20 *Ship noise quantification and source level estimation in the Arctic Ocean*  
**Najeem Shajahan, William D Halliday, Stephen J Insley**
- 11:20-11:40 *The MARS database – Source levels measured for the fleet navigating the St-Lawrence Estuary*  
**Pierre Mercure-Boissonnault, Pierre Cauchy, Faniry Fitiavana Rabetoandro, Cédric Gervaise, Guillaume St-Onge, Jeanne Mérindol, Cécile Perrier de la Bathie, Hugo Catoire**
- 11:40-12:00 *Analysis of the variability of ship acoustic signatures measured as a function of hydrophone configuration*  
**Cécile Perrier de la Bathie, Pierre Cauchy, Guillaume St-Onge**
- 12:00-12:20 *Measurement of vessel underwater acoustic signature at the MARS station – Repeatability and uncertainties assessed on a 1000 vessels database*  
**Pierre Cauchy, Pierre Mercure-Boissonnault, Cécile Perrier de la Bathie, Faniry Rabetoandro, Guillaume Saint-Onge, Cedric Gervaise, Sylvain Lafrance**

## BIOMEDICAL ACOUSTICS

*Chair: Nicolas Quaegebeur (U. of Sherbrooke)*

### Thursday October 5

- **Room CARTIER A**

- 15:20-15:40 *Miniaturized Acoustic Concentrators for Local Generation of Ultrasonic Waves*  
**Ibrahima Touré, Nicolas Quaegebeur**
- 15:40-16:00 *Printing beyond barriers using ultrasound in Direct Sound Printing*  
**Mohsen Habibi, Shervin Foroughi, Muthukumaran Packirisamy**
- 16:00-16:20 *Characterization of Noise Produced During Continuous and Sparse Sampling Functional Magnetic Resonance Imaging*  
**Olivier Robin, Félix Le Moigne - Le Dem, Pascal Tétreault, Dominique Lorrain, Vivien Staehle**
- 16:20-16:40 *Numerical analysis of energy density distribution in the human lungs under low-frequency acoustic excitation*  
**Arife Uzundurukan, Sébastien Poncet, Daria Camilla Boffito, Philippe Micheau**

## AEROACOUSTICS

*Chair: Joana Rocha (Carleton University) and Marlène Sanjosé (ÉTS)*

### Thursday October 5

- **Room VICTORIA**

- 15:20-15:40 *Derivation of an Empirical Model for the Estimation of Power Spectral Density in the Turbulent Boundary Layer of Aircraft With Machine Learning Regression Techniques*  
**Zachary Huffman, Joana Rocha**
- 15:40-16:00 *Aeroacoustic Optimization of a Metacage to Block the Noise Emitted by an Exhaust Fan*  
**Marco Lizotte, Jean-Bernard Piaud, Raymond Panneton, Tenon Charly Kone, Jean-Christophe Cuillière, Vincent François**
- 16:00-16:20 *Interaction noise for a rotor-stator assembly in a short duct*  
**Marlene Sanjose, Baahirham Shanthalingam**
- 16:20-16:40 *Evaluation of Wall Pressure Spectrum Models for Fan Noise Prediction*  
**Marlene Sanjose, Natacha Galand, Teddy Garnier, Stéphane Moreau**
- 16:40-17:00 *High-fidelity acoustic simulation of a recorder using powerflow*  
**Elissa El Hajj, Davide De Cicco, Annie Ross, David Vidal**

## EDUCATION IN ACOUSTICS

*Chair: Olivier Robin (U. of Sherbrooke)*

### Wednesday October 4

- **Room CARTIER B**

- 13:20-13:40 *Teaching architectural acoustics using project-based learning with real-world building projects*  
**Christoph Hoeller, Adrian Bloedt**
- 13:40-14:00 *Understanding the Skill Gap of Post-Secondary Graduates Entering the Acoustic Consulting Profession*  
**Abigail Farkas**
- 14:00-14:20 *Teaching Concepts of Acoustical Waves in Air - Part 2*  
**William John Gastmeier**
- 14:20-14:40 *Noise evaluation at the École de technologie supérieure campus in Montréal: A student project*  
**Olivier Doutres, Maël Lopez, Kévin Rouard, Louis-Philippe Campagna, Titouan Cougolic, Anthony Jutras, David Lauzon, Pierre-Luc Pépin-Pagé, Alexis Purson**
- 14:40-15:00 *Improving audiology student training by clinical simulation of tinnitus: a glimpse of tinnitus lived experience*  
**Pierre H Bourez, Guillaume T Vallet, Philippe Fournier**

## SOME IMPORTANT INFORMATION FOR A STRESS-FREE CONFERENCE

### Before Arriving at the Conference

- All presentations are scheduled for 18 minutes (15 minutes for the presentation + 3 minutes for questions). This leaves a brief 2 minutes to prepare for the next presentation.

### Upon Your Arrival

- When you arrive at the venue, please proceed to the registration desk located on level C1 of the building (1st floor beneath the entrance hall). Here, you can collect your conference badge. There are two ways to access it from the main entrance of the building, either by taking a staircase (to the left of the reception) or an escalator (to the right of the reception).
- Here are the registration desk opening hours:
  - Tuesday, October 6th: 6:00 PM to 8:30 PM
  - Wednesday morning: starting at 8:00 AM
  - Thursday and Friday mornings: starting at 8:30 AM.If the registration desk is closed, you can register at the coatroom located on the main conference level (floor C, two levels below the entrance hall).
- If you have chosen a social/technical event during your registration (e.g., ICAR, CIRMMT, or Maison Symphonique), you will be asked to confirm it during your check-in at the registration desk.
- Please confirm your food allergies and choose the type of main course for the gala banquet (meat dishes, fish dishes or pastas (vegetarian)).

### During the Conference

- The up-to-date conference program is available on the conference website ([https://awc.caa-aca.ca/public/conferences/2/AWC2023/AWC2023\\_Schedule.pdf](https://awc.caa-aca.ca/public/conferences/2/AWC2023/AWC2023_Schedule.pdf)). This program also includes the conference site map.
- The proceedings are already available online at <https://jcaa.caa-aca.ca/index.php/jcaa/issue/view/302>. Please note that this document does not contain the most current conference program. Instead, refer to the up-to-date program on the conference website, as provided in the previous point.
- Wi-Fi access is provided at the conference venue. A QR code will be displayed at various locations throughout the conference site.
- On the day before your presentation, please send it in ".ppt" or ".pdf" format to this email address: [upload@caa-aca.ca](mailto:upload@caa-aca.ca). Your email should include the session name, the name of the first author, and the presentation title. You can also upload your presentations to the room's computer during the breaks. You can use your USB drive or borrow one from the room coordinator.
- All breakout rooms will allow sound to be played from the computer used for presenting. Only the room's computer can be used (personal computers are not permitted). If you have sounds and/or videos to play, please plan to have the corresponding files on USB drives, just in case.
- Let's make AWC23 an environmentally friendly event together. Some sustainable actions implemented by the AWC organization, originally proposed by "Tourisme Montréal" and the "Conseil québécois des événements écoresponsables", are listed on the conference website: [https://awc.caa-aca.ca/index.php/AWC/index/pages/view/AWC2023\\_Eco](https://awc.caa-aca.ca/index.php/AWC/index/pages/view/AWC2023_Eco)
- An exhibition area is available on Wednesday, October 4th, and Thursday, October 5th, featuring various acoustic equipment, products, and services. We strongly encourage you to visit the booths, where you can explore the latest cutting-edge equipment and materials, as well as best practices in the field.
- A draw is being organized to encourage participants to visit the booths, with remarkable prizes generously provided by our sponsors and exhibitors. The AWC23 draw concept is simple: all participants will receive a card and can collect stamps during their visits to the booths. If they collect stamps from all the booths, they will be entered into the draw, which will take place during the Thursday Gala.
- A continental breakfast is served every morning between 8 and 9.30 am. Come to the conference hungry!
- The lunch buffets will indicate dishes for those with dietary restrictions (e.g. no dairy products, no gluten...).

### Social and Technical Events

- From Wednesday, October 4th to Friday, October 6th: Those who wish to participate in the noise mapping of Montreal can already install the "NoiseCapture" application on their mobile phones (a free and open-source application available only on Android). The code to enter for participating in the "NoiseCapture Party" of AWC23 is: AWC23. Before starting measurements, please visit Prof. Olivier Robin at his booth for more information and to calibrate your phone. The noise

mapping created by participants will be accessible in real-time at this address: [https://noise-planet.org/map\\_noisecapture/noisecapture\\_party.html#AWC23](https://noise-planet.org/map_noisecapture/noisecapture_party.html#AWC23)

- Tuesday, October 3rd: The welcome cocktail begins at 6:30 PM and ends at 8:30 PM. Cold appetizers and both alcoholic and non-alcoholic beverages will be provided. Wine and beer will be complimentary and unlimited from 6:30 PM to 8:00 PM. The number of attendees for this event is limited. Please arrive promptly at 6:30 PM. To avoid unnecessary travel, we will broadcast the real-time availability of seats on the ACA LinkedIn group and/or Twitter.
- During the Wednesday, October 4, and Thursday, October 5, lunch breaks, two tables will be reserved for participants interested in learning more about the ACA's board of directors. Come and discover the inner workings of this trans-Canadian professional association!
- Wednesday, October 4: There will be a "beer and pizza" event reserved for students and conference volunteers starting at 6:15 PM. This event will take place at "L'Amère à boire" (2049 Rue Saint-Denis, Montréal, QC H2X 3K8). Bring your conference badge, and you'll receive two drink coupons. Quantities are limited, so arrive early!
- Wednesday, October 4: A small reception, followed by a corporate tour, will be organized by EERS Global Technologies Inc. on Wednesday, October 4, from 5:30 PM to 8:00 PM. Please remember to reserve your spot before September 30th: [https://forms.office.com/Pages/ResponsePage.aspx?id=Lt2ZTf\\_OMUWeE\\_ygkZ651TyeMePCX0VNp6TeFd5wOEIU\\_M1BONFhEVEIJT0dRVzJMNjNONk9NUFo4VC4u](https://forms.office.com/Pages/ResponsePage.aspx?id=Lt2ZTf_OMUWeE_ygkZ651TyeMePCX0VNp6TeFd5wOEIU_M1BONFhEVEIJT0dRVzJMNjNONk9NUFo4VC4u)
- Thursday, October 5: All members of the Canadian Acoustical Association are invited to participate in the annual general meeting, which will take place in the REGENCE A room on Thursday, October 5, from 5:15 PM to 6:15 PM. This meeting will be followed by a cocktail hour, featuring a PowerPoint Karaoke that generated some interest during registration, and then the gala evening. The gala evening will conclude with an open musical jam session, held in the REGENCE A room. Bring your musical instrument!
- Friday, October 6: Three exciting scientific tours are proposed: [https://awc.caa-aca.ca/index.php/AWC/index/pages/view/AWC2023\\_SocialEvents](https://awc.caa-aca.ca/index.php/AWC/index/pages/view/AWC2023_SocialEvents)  
These tours are taking place simultaneously, so you can only participate in one. You will be asked to confirm your chosen tour upon your arrival at the registration desk. Please wear your conference badge during the tours to help your guide identify AWC23 participants.

#### **Upon Leaving the Conference Venue**

- The conference has come to an end for you! Please deposit your name badge (badge and lanyard) in the boxes located at the base of the stairs and escalator (level C of the conference). These name badges will be reused for other events.

Look forward to seeing you.

Prof. Olivier Doutres and the AWC23 organizing committee.