McGill

AQL 2019

THE 13TH INTERNATIONAL CONFERENCE ON
**ADVANCES IN QUANTITATIVE LARYNGOLOGY,
VOICE + SPEECH RESEARCH**

PROGRAM /

JUNE 2 – 4, 2019 / MONTREAL, CANADA

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AQL supports Refill McGill, an initiative to reduce single-use plastic water bottles during the meeting

WELCOME TO AQL 2019! /
BIENVENUE À MONTRÉAL 2019!

DEAR COLLEAGUES AND GUESTS,

On behalf of the local organizing committee and the hosting institution, it is our great pleasure to welcome you to Montreal, Canada, for the 13th International Conference on Advances in Quantitative Laryngology, Voice and Speech Research (AQL 2019). The AQL was established to provide a unique opportunity for partnership and collaboration in the advancement of quantitative methods for the measurement and modelling of voice and speech. The AQL accomplishes this mandate by facilitating interprofessional scientific conference and training intended for an international community of otolaryngologists, speech-language pathologists and voice scientists. With a continued drive toward advancements in translational and clinical voice science, the AQL has rapidly expanded over the past 20 years, from a forum of 15 European member-laboratories to a globally recognized symposium, connecting over 100 delegates from across the world.

The AQL 2019 scientific program will foster discussions to inspire participants from a wide array of themes to initiate collaborations within and across disciplines for the advancement of our field. The 1-day preconference workshops on June 2 will provide a comprehensive overview on the topics of biomedical optics, numerical simulation, tissue engineering as well as commercializing research innovations. The 2-day main conference will feature a total of over 100 oral and poster presentations by distinguished voice scientists and clinicians from 18 countries around the world. The program includes a start-up business competition and best poster presentation awards.

The six keynote speakers for AQL 2019 are Drs. Adela Ben-Yakar, Hanspeter Herzel, Seong Keun Kwon, Jennifer Long, Rupal Patel and Robert Zatorre. Their research work is on the cutting edge of medical optics, nonlinear dynamics, tissue engineering, computational medicine and neurosciences respectively. An expert forum with Drs. Shari Baum, Noha Gerges, Rupal Patel, Lana Shekim and Susan Thibeault will share their ideas on the growth of "disruptive innovation" and how the funding and education institutions respond to this new ecosystem.

We are most grateful to the local staff, participants, session chairs, poster judges, program committee members, keynote and plenary speakers for helping us build a very exciting conference program. We could not have done it without their help! We will make every possible effort to ensure that your participation will be scientifically rewarding. We also hope that you will have a pleasurable experience visiting McGill, one of the top Universities worldwide, and Montreal, a city rich in history and with a rich multi-cultural and multi-lingual identity.

Sincerely,
Nicole Li-Jessen and Luc Mongeau
Co-Chairpersons
13th International Conference on
Advances in Quantitative Laryngology,
Voice and Speech Research

LUC MONGEAU, PhD /
CO-CHAIR

Luc Mongeau has B.Eng. and M. Eng. degrees in Mechanical Engineering from the University of Montreal. He has obtained his PhD in Acoustics from the Pennsylvania State University in 1991. He built his first mechanical replica of the human larynx for flow measurements as Postdoctoral Member of Technical Staff at AT&T Bell Laboratories in Murray Hill, New Jersey, in 1992. After joining Purdue University in 1993, Dr. Mongeau conducted research on the biomechanics of voice production, in particular laryngeal flows, sound production mechanisms, and viscoelastic properties using both experimental and computational methods.

Dr. Mongeau joined the Department of Mechanical Engineering at McGill University in 2006, where he has focused on tissue engineering of the human larynx for voice restoration. He presently holds the Tier I Canada Research Chair in Voice Biomechanics and Mechano-biology. He has received the 2018 Quintana Research Award from the Voice Foundation. He was invited to deliver keynote lectures at international conferences such as AQL 2010 in Erlangen and at the 2016 International Conference on Voice Physiology and Biomechanics (ICVPB) in Valparaiso, Chile. He has recently organized and co-chaired a symposium on vocal fold tissue engineering at the Tissue Engineering and Regenerative Medicine International Society (TERMIS) World conference on September 4–7, 2018, in Kyoto, Japan.

He has published over 125 peer reviewed journal articles. He has supervised 27 PhD and over 50 MS students so far. He is a member of the Voice Foundation, a Fellow of the Acoustical Society of America, a Senior Member of the AIAA, a member of the Canadian Society of Biomaterials, TERMIS, and the European Society of Biomechanics.

NICOLE
LI-JESSEN, PhD /
CO-CHAIR

Nicole Li-Jessen, PhD, is a speech-language pathologist and a computer biologist by training. She obtained her clinical degree at the University of Hong Kong with extensive clinical experience in voice and swallowing disorders. She then pursued her PhD training in Prof. Katherine Verdolini-Abbott's laboratory at the University of Pittsburgh and post-doctoral training in Prof. Susan Thibeault's laboratory at the University of Wisconsin-Madison in the United States. She joined McGill University as Assistant Professor in 2014. She is Canada Research Chair (tier 2) in personalized medicine of voice disorders. She was invited to represent McGill University Ideas Lab at the World Economic Forum, the Summer Davos New Champions Meeting in Tianjin (China) in 2018.

Dr. Li-Jessen's Voice and Upper Airway Research Laboratory focuses on advancing personalized medicine in voice and upper airway dysfunctions through the development of biological computing, wearable devices, non-invasive diagnostics and injectable biomaterials. Her work is funded by Canadian Institutes of Health Research, Natural Sciences and Engineering Research Council of Canada and National Institutes of Health in the United States.

Dr. Li-Jessen is the National Coordinator (Canada) of World Voice Day. She and her students from the Speech-Language Pathology Clinical Program organize year-round outreach activities to raise the public awareness of vocal care. She is also the Chair of the Widening Participation Committee (Faculty of Medicine) with the passion of enhancing the diversity of the student body within health professional programs at McGill. She is dedicated to promoting diversity, cultural competence and social accountability in health professions education .

9:00 am	Pre-Conference Workshop Registration Opens Macdonald Engineering Building, 817 Sherbrooke St W., Montreal, QC H3A 2K7	
	Rm 279	**Rm 280**
9:30 am	**Understanding Biological Oscillators** by Hanspeter Herzel	**Practicalities of Cell and Tissue Studies in the Larynx** by Jennifer Long
10:15 am	Coffee Break	
10:30 am	**Hybrid aeroacoustic approach for the efficient numerical simulation of human phonation** by Stefan Schoder, Sebastian Falk, Michael Döllinger and Manfred Kaltenbacher	
10:45 am	**simVoice – Numerical computation of the human voice source** by Sebastian Falk, Stefan Kniesburges, Hossein Sadeghi, Stefan Schoder, Manfred Kaltenbacher and Michael Döllinger	**Three Dimensional Culture of Stem Cells: its Benefits and Technical Pitfalls** by Seong Keun Kwon
11:00 am	**Aeroacoustic and vibroacoustic mechanisms during phonation** by Alexander Lodermeyer, Eman Bagheri, Christoph Näger, Katrin Nusser, Stefan Becker, Michael Döllinger and Stefan Kniesburges	
11:15 am	Coffee Break	
11:30 am	**Contact pressure and length as a function of posterior glottal area: synthetic vocal fold investigations** by Mohsen Motieshirazi, Sean Peterson, Matías Zañartu, Daryush Mehta, James Kobler, Robert Hillman and Byron Erath	
11:45 am	**Updated rules for constructing a triangular body-cover model of the vocal folds from intrinsic laryngeal muscle activation** by Gabriel A. Alzamendi, Sean D. Peterson, Byron Erath and Matías Zañartu	**Biomechanical and Biomaterial Lab Visits and Demonstrations (Group 1)**
12:00 am	**Synthetic vocal fold model closed quotient optimization** by Cassandra Taylor, Austin Vaterlaus, Michael Farnsworth and Scott Thomson	
12:15 am	**A machine-learning based reduced-order modeling of glottal flow** by Yang Zhang, Xudong Zheng and Qian Xue	

12:30 pm	**Lunch Break**	
1:30 pm	**Fundamentals of Biomedical Optics and Imaging** by Lucie Bailly, Fouzi Benboujja, Luc Mongeau	**From Lab to Venture: The process of commercializing research innovations by Rupal Patel** Guest Coaches: Jarred Chicoine and Noha Gerges *Special Workshop for Student and Post-Doc Research Trainees.*
4:00 pm – 4:45 pm	**Biomechanical and Biomaterial Lab Visits and Demonstrations (Group 2)**	
5:00 pm – 6:00 pm	**Redpath Museum Tour**	
6:00 pm – 8:00 pm	**Welcome Reception (Redpath Museum)**	

7:30 am	**Conference Registration Opens and Morning Coffee / Tea**
8:00 am	**Opening and Welcome** by Nicole Li-Jessen and Luc Mongeau
	SESSION 1: Quantitative measurements for vocal health and disorders (Chair: Rita Patel)
8:15 am	**KEYNOTE LECTURE 1: Ultrafast Laser Phonosurgery for Biomaterial Localization in Scarred Vocal Folds** by Adela Ben-Yakar
8:45 am	**Vocal-fold 3D micro-architecture and micro-mechanics: a multimodal imaging study** by Thibaud Cochereau, Hamid Yousefi-Mashouf, Lucie Bailly, Jérôme Sohier, Laurent Orgéas, Nathalie Henrich Bernardoni, Sabine Rolland du Roscoat, Anne McLeer-Florin and Olivier Guiraud
9:00 am	**Influence of recording perspective in laryngoscopy on perceived asymmetry** by Marion Semmler, Sahar Fattoum, Reinhard Veltrup, Stefan Kniesburges, Anne Schützenberger and Michael Döllinger
9:15 am	**Extracting reduced-order model parameters from high-speed video of silicone vocal folds using a gradient-based approach** by Jonathan Deng, Paul Hadwin, Mohsen Motie-Shirazi, Byron Erath, Matías Zañartu and Sean Peterson
9:30 am	**Segmenter's influence on objective glottal area waveform measures from high-speed laryngoscopy** by Youri Maryn, Monique Verguts, Hannelore Demarsin, Pablo Gomez, Patrick Schlegel and Michael Döllinger
9:45 am	**Vocal fold collision pressure amplitude and timing in an excised hemilarynx setup with dual high-speed videoendoscopy** by Daryush Mehta, James Kobler, Matías Zañartu, Byron Erath, Mohsen Motie-Shirazi, Sean Peterson, Robert Petrillo and Robert Hillman
10:00 am	**Coffee Break**
	SESSION 1 (Cont'd): Quantitative measurements for vocal health and disorders (Chair: Nathan Welham)
10:15 am	**Recent advancements in acoustic anlaysis for assessing laryngeal function** by Jack Jiang, Hayley Raj, Boquan Liu
10:30 am	**Optimization of relative fundamental frequency estimation algorithms: accounting for sample characteristics and fundamental frequency estimation method** by Jennifer Vojtech, Katharine Kolin, Roxanne Segina and Cara Stepp
10:45 am	**Acoustic phonatory tremor index: objective quantification of perceived vocal tremor severity** by Youri Maryn, Andrzej Zarowski, Marc Leblans and Julie Barkmeier-Kraemer
11:00 am	**Accelerometer-based prediction of subglottal pressure in healthy speakers producing non-modal phonation** by Jonathan Lin, Victor Espinoza, Matías Zañartu, Katherine Marks and Daryush Mehta

11:15 am	**Classification of vocal gestures extracted from quasi-daily sentences to detect vocal fatigue** by Yixiang Gao, Maria Dietrich, Melinda Pfeiffer, Allison Walker and Guilherme N. DeSouza
11:30 am	**Uncertainty of ambulatory airflow estimates and its effect on the classification** **of phonotraumatic vocal hyperfunction** by Juan Cortés, Gabriel Alzamendi, Alejandro Weinstein, Juan Yuz, Víctor Espinoza, Daryush Mehta, Jarrad Van Stan, Robert Hillman and Matías Zañartu
11:45 am	**How is vocal loudness affected by spectral slope** by Ingo Titze
12:00 pm	**Bento Box Lunch**
12:15 pm – 1:45 pm	**Townhall Meeting** Moderator: Luc Mongeau
1:00 pm – 2:00 pm	**POSTER SESSION 1**
	SESSION 2: Computational medicine in laryngology (Co-chairs: Lucie Bailly and Sean Peterson)
2:00 pm	**KEYNOTE LECTURE 2: Nonlinear Phenomena in Voice Research** by Hanspeter Herzel
2:30 pm	**Vocal fold visco-hyperelastic properties: characterization and multiscale modeling upon finite strains** by Alberto Terzolo, Thibaud Cochereau, Lucie Bailly, Laurent Orgéas and Nathalie Henrich Bernardoni
2:45 pm	**Investigation of constrains on vocal fold viscoelastic properties using an inverse mapping approach** by Ted Mau, Anil Palaparthi and Ingo Titze
3:00 pm	**Vocal fold contact pressure in a three-dimensional body-cover phonation model** by Zhaoyan Zhang
3:15 pm	**Numerical study of the influence of vascular morphology on the evolution** **of vortical flow structures through the blood-feeding arteries of the human vocal folds:** **application to drug delivery for laryngeal cancer** by Mehdi Shamshiri, Rosaire Mongrain and Luc Mongeau
3:30 pm	**Coffee Break**
	POSTER SESSION 2
	SESSION 2 (Cont'd): Computational medicine in laryngology (Co-chairs: Ingrid Verduyckt and Matías Zañartu)
4:00 pm	**Development of a high-fidelity voice simulator – from muscle contraction to running speech** by Biao Geng, Xudong Zheng, Ngoc Pham and Qian Xue
4:15 pm	**SpEAR: a speech database for the advancement of intra-aural wearable technology** by Rachel E. Bouserhal and Jérémie Voix

4:30 pm	**High performance simulation and visualization of 3D vocal fold agent-based model** by Nuttiiya Seekhao, Grace Yu, Samson Yuen, Joseph Jaja, Luc Mongeau and Nicole Li-Jessen	
4:45 pm	**KEYNOTE LECTURE 3: How can Voice Scientists enhanceVoice AI and Protect us from its Perils** by Rupal Patel	
5:15 pm	**Expert Forum: Future outlook of disruptive innovation in voice science and healthcare during the era of the 4th industrial revolution** – Shari Baum, Vice Dean (Life Sciences), Faculty of Medicine, McGill University – Noha Gerges, MITACS Business Development Specialist, McGill University – Rupal Patel, CEO & Founder, VocaliD Inc. – Lana Shekim, Program Director, Voice and Speech Programs, National Institute on Deafness and Other Communication Disorders, National Institutes of Health – Susan Thibeault, Vice Chair of Research, Department of Surgery, University of Wisconsin-Madison Moderator: Nicole Li-Jessen	
6:05 pm	**Coach Bus Transit to Gala Dinner**	
6:30 pm –8:30 pm	**Gala Dinner + Award Presentation of Start-up Business Competition Winner (Montreal Science Centre)**	

POSTER SESSION /
Monday June 3, 2019 / 1 of 3

	POSTER SESSION 1 (13:00 – 14:00)	
1	**Riedel's thyroiditis and cordal paralysis: a single case study**	by Gonzalo Nicolás Inostroza Moreno
3	**Influence of voice focus adjustments on oral-nasal balance in speech and singing**	by Charlene Santoni, Tim Bressmann, Gillian de Boer and Michael Thaut
5	**Immunological profiling of vocal fold hydrogel scaffolds**	by Patrick T. Coburn, Alex Herbay and Nicole Li-Jessen
7	**Chemical receptors of the larynx: a comparison of human and mouse**	by Marie Jetté, Matthew Clary, Jeremy Prager and Thomas Finger

9	**Passive vowel devoicing in Osaka Japanese: case study using EMG and PGG**	by Masako Fujimoto, Ken-Ichi Sakakibara, Niro Tayama and Kiyoshi Honda
11	**An Investigation of vocal fatigue using a dose-based vocal loading task**	by Zhengdong Lei, Laura Fasanella, Nicole Li-Jessen and Luc Mongeau
13	**High-resolution CFD simulation of flow in glottis using LES**	by Petr Šidlof and Martin Lasota
15	**Quantification of the degree of vocal fatigue in teachers by means of an interface that characterizes voice signals**	by Diego Morales, Stephanie Cuellar, Hédrick Robles, Emilio Sánchez and Lady Catherine Cantor Cutiva
17	**Clinical practicability of a newly developed real-time digital kymographic system**	by Jin-Choon Lee, Soo-Geun Wang, Eui-Suk Sung, In-Ho Bae, Seong-Tae Kim and Yeon-Woo Lee
19	**Functional changes of submandibular gland by Steatosis-induced ferroptosis in ovariectomized rats**	by Han-Seul Na
21	**Extracellular matrix turnover in human larynx**	by Yoshitaka Kawai, Brian Frey, Bruce Buchholz and Nathan Welham
23	**Tissue hysteresis and relaxation, phonation onset, and phonation offset in the context of the surface wave model**	by Lewis Fulcher and Ronald Scherer
25	**3D printed scaffold design for vocal fold tissue engineering application**	by Anete Branco, Peter Moua, Amit Nimunkar and Susan Thibeault
27	**A preliminary study on pharyngoesophageal vibration in tracheoesophageal speech by means of a collapsible channel model**	by André Miazaki da Costa Tourinho, Fernando Henrique Tanaka Santos and Andrey Ricardo da Silva
29	**Application of two different modalities for the vibratory characterastics in vocal fold vibration of vocal cord paralysis before and after injection laryngoplasty- laryngeal videostroboscopy and two dimensional scanning videokymography**	by Eui-Suk Sung, Soo-Geun Wang, Byung-Joo Lee, Han-Seul Na and Jin-Choon Lee
31	**Biochemical alterations in vocal fold tissue in the production of decellularized extracellular matrix hydrogels**	by Mika Brown and Nicole Li-Jessen

POSTER SESSION 2 (15:30 –16:00)	
2	**Development, validation and analysis of numerical larynx models with regard to computational costs**	by Stefan Kniesburges, Hossein Sadeghi, Sebastian Falk, Manfred Kaltenbacher and Michael Döllinger
4	**Agent-based model of hyaluronic acid-gelatin scaffold for vocal fold tissue engineering**	by Grace Yu, Nuttiiya Seekhao, Caroline Shung, Luc Mongeau and Nicole Li-Jessen
6	**Usefulness of cepstral peak prominence (cpp) in post-thyroidectomy dysphonia evaluation**	by Hee Young Son
8	**Decoding phonation with artifical intelligence: proof of concept**	by Maria Powell, Marcelino Rodriguez Cancio, David Young, William Nock, Beshoy Abdelmessih, Amy Zeller, Irvin Perez Morales, Peng Zhang, C. Gaelyn Garrett, Douglas Schmidt, Jules White and Alexander Gelbard
10	**Glottal area waveform modeling based voice quality typing**	by Philipp Aichinger, Imme Roesner, Franz Pernkopf and Jean Schoentgen
12	**Automated quantification of inflection events in the electroglottographic signal**	by Juliana Codino, María Eugenia Torres, Adam Rubin and María Cristina Jackson Menaldi
14	**Characteristics of the pharyngoesophageal segment: literature review**	by Ana Carolina Ghirardi, Andrey Ricardo da Silva, Thaiana Nakandakari and Rayane da Silva
16	**Characterizing vocal fold injury recovery in a rabbit model with multimodal imaging**	by Ksenia Kolosova, Marius Tuznik, Qiman Gao, Sarah Bouhabel, Huijie Wang, Nicole Li-Jessen, Luc Mongeau and Paul Wiseman

7:30 am	**Conference Registration Opens and Morning Coffee / Tea**
	SESSION 3: Laryngeal immunology, biology and engineering (Co-chairs: Karen Kost and Jennifer Long)
8:00 am	**KEYNOTE LECTURE 4: Augmenting the Glottic Gap with Tissue Engineering Approaches** by Seong Keun Kwon
8:30 am	**The causes and laryngeal electromyography characteristics of unilateral vocal fold paralysis** by Rong Hu, Wen Xu and Qingwen Yang
8:45 am	**Arytenoid adduction and type 1 thyroplasty for unilateral vocal fold paralysis: measurements from six excised canine larynges** by Alexandra Maddox, Charles Farbos de Luzan, Liran Oren, Sid Khosla and Ephraim Gutmark
9:00 am	**Increased calcium channel in the lamina propria of aging rat** by Byung-Joo Lee, Ji Min Kim, Sung-Chan Shin, Han-Seul Na, Jin-Choon Lee and Eui-Suk Sung
9:15 am	**Localization of the tight junction proteins claudin family in the laryngeal glands: a rodent study** by Ryo Suzuki, Yo Kishimoto, Nao Hiwatashi, Masanobu Mizuta, Atsushi Suehiro, Ichiro Tateya and Koichi Omori
9:30 am	**Macrophages in the vocal fold** by Yo Kishimoto, Shinji Kaba, Ryosuke Nakamura, Ichiro Tateya, Koichi Omori and Nathan Welham
9:45 am	**Coffee Break**
	SESSION 3 (Cont'd): Laryngeal immunology, biology and engineering (Co-chairs: Marie Jetté and Yo Kishimoto)
10:00 am	**Vocal fold-mimetic environment for the modulation of stem cell functions** by Aidan Zerdoum, Alexander Stuffer, Zhixiang Tong and Xinqiao Jia
10:15 am	**Bioprinting highly porous chitosan-based scaffolds with tunable stiffness and viscoelasticity for vocal fold repair** by Guangyu Bao, Tao Jiang, Hossein Ravanbakhsh, Huijie Wang, Joseph Kinsella, Jianyu Li and Luc Mongeau
10:30 am	**The effects of laryngeal massage and nebulized saline on high-voice users** by Matti Groll, Daniel Buckley, Kimberly Dahl and Cara Stepp
10:45 am	**Investigating the pathobiology of vocal fold dehydration and rehydration** by Preeti Sivasankar and Abigail Durkes
11:00 am	**Increased laryngeal mucosal cellular proliferation in mice exposed short-term to cigarette smoke** by Elizabeth Erickson-DiRenzo, Meena Easwaran and Joshua Martinez
11:15 am	**Effects of voice changes under testosterone therapy on listener perception of gender: A transgender case study** by Kimberly Dahl, Gabriel Cler, Victoria McKenna and Cara Stepp

11:30 am	**KEYNOTE LECTURE 5: Cell-based Outer Vocal Fold Replacement (COVR): Development in vitro and Advances in vivo** by Jennifer Long
12:00 pm	**Bento Box Lunch**
12:30 pm	**POSTER SESSION 3**
	SESSION 4: Voice classification, perception and physiology (Chair: Wen Xu)
1:30 pm	**KEYNOTE LECTURE 6: Using the Vocal System for Communication: Neural Substrates of Speech and Song** by Robert Zatorre
2:00 pm	**The relationship between speech rate, voice quality and listeners' purchase intentions** by Man Wai Poon, Karen M. K. Chan and Edwin M. L. Yiu
2:15 pm	**Predicting emphatic speech: classification of non-literal utterances** by Richard Yanaky
2:30 pm	**Auditory acuity to fundamental frequency in children with and without vocal fold nodules** by Elizabeth Heller Murray, Anne Hseu, Roger Nuss, Geralyn Harvey Woodnorth and Cara Stepp
2:45 pm	**Cortical mechanisms controlling the speech production during Lombard effect: an EEG study** by Pavel Prado, Christian Castro, Alejandro Weinstein, Lucía Zepeda, Juan Mucarquer and Matías Zañartu
3:00 pm	**Coffee Break**
	POSTER SESSION 4
	SESSION 4 (Cont'd): Voice classification, perception and physiology (Chair: Ted Mau)
3:30 pm	**Phonation type and amplitude of voice source fundamental** by Johan Sundberg
3:45 pm	**Vocal tract shape and acoustic adjustments of children during phonation into narrow flow-resistant tubes** by Rita Patel and Steven Lulich
4:00 pm	**Comparison of voice onset measures with glottal pulse identification in acoustic signals: preliminary analyses** by Catherine Madill and Duy Duong Nguyen
4:15 pm	**Automatic voice signal typing using classic and nonlinear dynamics features** by Juan Manuel Miramont, Juan Felipe Restrepo, Juliana Codino, Gastón Schlotthauer and Cristina Jackson-Menaldi
4:30 pm	**Differences in ambulatory vocal behavior between patients with phonotraumatic lesions and matched healthy controls** by Jarrad Van Stan, Mark Vangel, Daryush Mehta, Andrew Ortiz, James Burns, Laura Toles, Katherine Marks and Robert Hillman
4:45 pm	**Poster Winner Announcement and Closing Remark** by Nicole Li-Jessen and Luc Mongeau

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	POSTER SESSION 3 (12:30 – 13:30)	
18	**The effect of cognitive load on acoustic measures of voice in individuals with hyperfunctional voice disorders**	by Kimberly Dahl and Cara Stepp
20	**The use of nasalance for voice stabilisation during the tenors' passaggio**	by Matthias Echternach, Michael Döllinger, Catalina Högerle, Marie-Anne Kainz, Marie Köberlein and Bernhard Richter
22	**Numerical analysis of the airflow downstream from a tracheoesophageal voice prosthesis**	by Fernando Henrique Tanaka Santos, André Miazaki da Costa Tourinho and Andrey Ricardo da Silva
24	**Methodological barriers in building an audiovideo database for automatic identification of fatigue levels through speech and facial expressions in people with a neurological condition**	by Madeleine Borgeat, Imane Hocine, Patrick Cardinal, Éric Granger, François Michaud, Claire Croteau, Claudine Auger and Ingrid Verduyckt
26	**Beneficial effects of choral singing on speech and voice in normal aging**	by Valérie Brisson, Maxime Perron, Émilie Belley, Lisa-Marie Deschênes, Julie Poulin, Johanna-Pascale Roy, Josée Vaillancourt, Philip Jackson and Pascale Tremblay
28	**Esophageal wall compliance and its influence on the driving pressures of tracheoesophageal speech**	by Byron Erath and Sean Peterson
30	**On the role of simultaneous observations for a Bayesian estimation of subglottal pressure and laryngeal muscle activation**	by Gabriel Alzamendi, Sean Peterson, Byron Erath and Matías Zañartu
32	**Comparing accelerometer and oral airflow based aerodynamic measures in patients with vocal hyperfunction**	by Víctor Espinoza, Daryush Mehta, Jarrad Van Stan, Robert Hillman and Matías Zañartu
34	**Evaluation of anti-fibrotic activity of wound healing macrophages in a 3D in vitro model for vocal fold scar treatment**	by Sepideh Mohammadi and Luc Mongeau
36	**Perceptual evaluation of "strain" in speakers with adductor spasmodic dysphonia: A pupillometric study**	by Mojgan Farahani, Vijay Parsa and Philip Doyle
38	**Stress relaxation in carbon nanotube composite hydrogels for vocal fold tissue regeneration**	by Hossein Ravanbakhsh, Guangyu Bao and Luc Mongeau

40	Three-dimensional vocal fold deformation under simulated lateral cricoarytenoid muscle activation in an excised human larynx	by Liang Wu, Dinesh Chhetri and Zhaoyan Zhang
42	High throughput drug and kinase inhibitor screening for idiopathic subglottic stenosis	by Jordan Malenke and Alex Gelbard
44	Clinical and surgical implications of intraoperative optical coherence tomography imaging for benign pediatric vocal fold lesions	by Fouzi Benboujja and Christopher Hartnick

POSTER SESSION 4 (15:00–15:30)	
33	Estimating patient-specific contact pressures using a finite element model	by Paul Hadwin, Mohsen Motie-Shirazi, Byron Erath, Matías Zañartu and Sean Peterson
35	Simultaneous measurements of glottal velocities and vocal folds geometry in a canine larynx model	by Charles Farbos De Luzan, Alexandra Maddox, Liran Oren, Ephraim Gutmark and Sid Khosla
37	Application of a promotion of vocal health program (virtual + face to face) for college professors	by Ángela Patricia Atará-Piraquive and Lady Catherine Cantor-Cutiva
39	Investigation of vocal folds poroelastic behaviour under mechanical loading in different bath concentrations	by Pooya Saberi and Luc Mongeau
41	In vitro analysis of polymeric microspheres containing human vocal fold fibroblasts for vocal fold lamina propria regeneration	by Alicia Reyes Valenzuela, Luc Mongeau and Satya Prakash
43	Laser-projection system and method for 3D calibrated laryngeal measurements using transnasal flexible high-speed videoendoscopy	by Dimitar Deliyski, Hamzeh Ghasemzadeh, David Ford, Daryush Mehta, Milen Shishkov, Brett Bouma, James Kobler, Matías Zañartu, Alessandro de Alarcon and Robert Hillman

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KEYNOTE SPEAKERS /

ADELA BEN-YAKAR
PhD /

*Harry L. Kent, Jr. Professor
of Mechanical Engineering
The University of Texas at Austin, USA*

Prof. Ben-Yakar has received her PhD from Stanford University and completed her postdoctoral work at Stanford and Harvard Universities in the Applied Physics Departments. Her research focuses on the development of opto-fluidic systems for high-throughput screening, ultrafast laser microsurgery, nonlinear imaging, and clinical image-guided surgery. Prof. Ben-Yakar is an OSA and AIMBE Fellow, and the recipient of the Fulbright Scholarship, Zonta Amelia Earhart Award, NSF Career Award, Human Frontier Science Program Research Award, NIH Director's Transformative Award, and SBI2 President's Research Award.

KEYNOTE TALK TITLE:
Ultrafast Laser Phonosurgery for Biomaterial Localization in Scarred Vocal Folds

HANSPETER HERZEL
PhD /

*Professor, Institute for
Theoretical Biology.
Charité – Universitätsmedizin Berlin
and Humboldt University of
Berlin, Germany*

Prof. Herzel studied physics at Humboldt University Berlin. He received his PhD in 1986 with a thesis on stochastic and chaotic processes. Afterwards his reseach was devoted to the nonlinear dynamics of voice production. He studied nonlinear phenomena in newborn cries, voice patients, and animals by combining biomechanical modeling with data analysis. Currently he works as a professor of Theoretical Biology at the Charite Berlin with a focus on chronobiology. He was a co-founder of the AQL conferences and hosted the ICVPB 1999 in Berlin bringing together human voice research with animal bioacoustics.
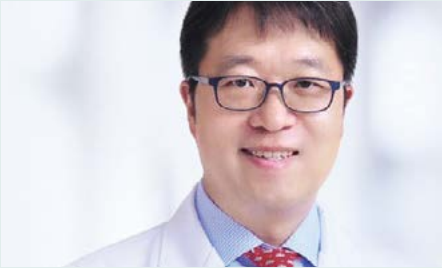
KEYNOTE TALK TITLE:
Nonlinear Phenomena in Voice Research

WORKSHOP TITLE:
Understanding Biological Oscillators

KEYNOTE
SPEAKERS /

SEONG KEUN KWON
MD, PhD /

*Professor, Department of
Otorhinolaryngology
Head and Neck Surgery
Seoul National University Hospital,
Republic of Korea*

Prof. Kwon received his MD (1996), MS (2004), and PhD (2007) degrees at Seoul National University in the Department of Otorhinolaryngology-Head and neck surgery. His work concentrates on regenerating the trachea, vocal fold, salivary gland and oral mucosa with scaffold, growth factors and stem cells. He has received the Casselberry award for the rejuvenation of aged vocal fold from the American Laryngological Association in 2018. He also received the Broyles-Malony award for tracheal regeneration in 2016 from the American Bronchoesophago-logical association. He has organized multiple joint workshops to enhance the research on tissue engineering for head and neck defects since 2011.

KEYNOTE TALK TITLE:
Augmenting the Glottic Gap with Tissue Engineering Approaches

WORKSHOP TITLE:
Three Dimensional Culture of Stem Cells: its Benefits and Technical Pitfalls

JENNIFER L. LONG
MD, PhD /

*Associate Professor,
Department of Head and Neck Surgery
University of California – Los Angeles,
and Greater L.A. VA Health System*

Prof. Long is a laryngologist and Associate Professor at the University of California-Los Angeles. She obtained her MD and PhD degrees at the University of Minnesota, studying Chemical Engineering and Materials Science. She then completed clinical residency in Head and Neck Surgery at UCLA, followed by a fellowship in Laryngology and Voice Disorders. Her research focuses on regenerative medicine approaches to laryngeal disorders. Her lab has been funded by the American Laryngological Association, the Department of Veterans Affairs, and the National Institutes of Health.

KEYNOTE TALK TITLE:
Cell-based Outer Vocal Fold Replacement (COVR): Development in vitro and Advances in vivo

WORKSHOP TITLE:
Practicalities of Cell and Tissue Studies in the Larynx

RUPAL PATEL
PhD, CCC-SLP /

Professor, College of Computer and Information Science and Dept. of Communication Sciences and Disorders, Northeastern University, USA. Founder & CEO, VocaliD

Prof. Patel is founder and CEO of VocaliD, a voice AI company that creates custom digital voices. VocaliD's award-winning technology empowers individuals living with speechlessness to be heard as themselves and brings things-that-talk to life through its uniquely crafted vocal persona. Rupal's research focuses on speech motor control in healthy talkers and those with neuromotor speech impairment. A native of Canada, she earned her bachelor's degree from University of Calgary, her master's and PhD from University of Toronto and completed post-doctoral training at Massachusetts Institute of Technology. Rupal was recently named one of Fast Company's 100 Most Creative people in Business.

KEYNOTE TALK TITLE:
How can Voice Scientists enhance Voice AI and Protect us from its Perils

WORKSHOP TITLE:
From Lab to Venture: The Process of Commercializing Research Innovations

ROBERT ZATORRE
PhD /

Professor, Dept. of Neurology and Neurosurgery, Dept. of Psychology McGill University, Canada

Prof. Zatorre is a cognitive neuroscientist at the Montreal Neurological Institute of McGill University. His principal interests relate to the neural substrate for auditory cognition, with special emphasis on two complex and characteristically human abilities: speech and music. He and his collaborators have published over 280 scientific papers on a variety of topics including pitch perception, musical imagery, absolute pitch, music and emotion, perception of auditory space, and brain plasticity in the blind and the deaf. In 2011 he was awarded the IPSEN foundation prize in neuronal plasticity, and in 2013 he won the Knowles prize in hearing research from Northwestern University.
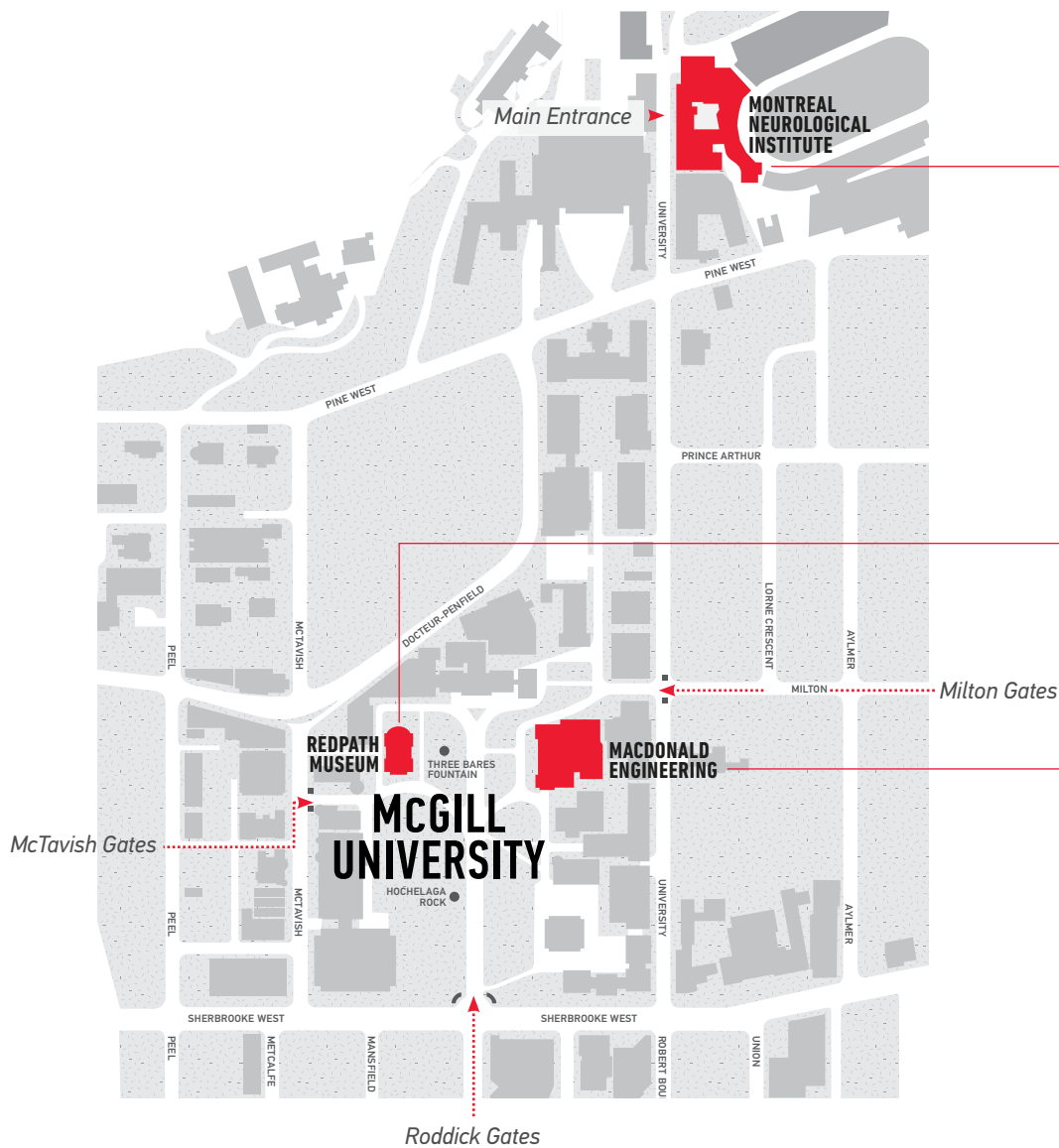
KEYNOTE TALK TITLE:
Using the Vocal System for Communication: Neural Substrates of Speech and Song

MCGILL CAMPUS MAP /
DOWNTOWN MONTREAL

Main Entrance

MONTREAL NEUROLOGICAL INSTITUTE

AQL CONFERENCE

WELCOME RECEPTION

PRE-CONFERENCE WORKSHOPS

Milton Gates

REDPATH MUSEUM

THREE BARES FOUNTAIN

MACDONALD ENGINEERING

McGILL UNIVERSITY

HOCHELAGA ROCK

McTavish Gates

Roddick Gates

PINE WEST

PINE WEST

PRINCE ARTHUR

MILTON

SHERBROOKE WEST

SHERBROOKE WEST

UNIVERSITY

DOCTEUR-PENFIELD

MCTAVISH

PEEL

LORNE CRESCENT

AYLMER

PEEL

METCALFE

MANSFIELD

MCTAVISH

UNIVERSITY

ROBERT BOU

UNION
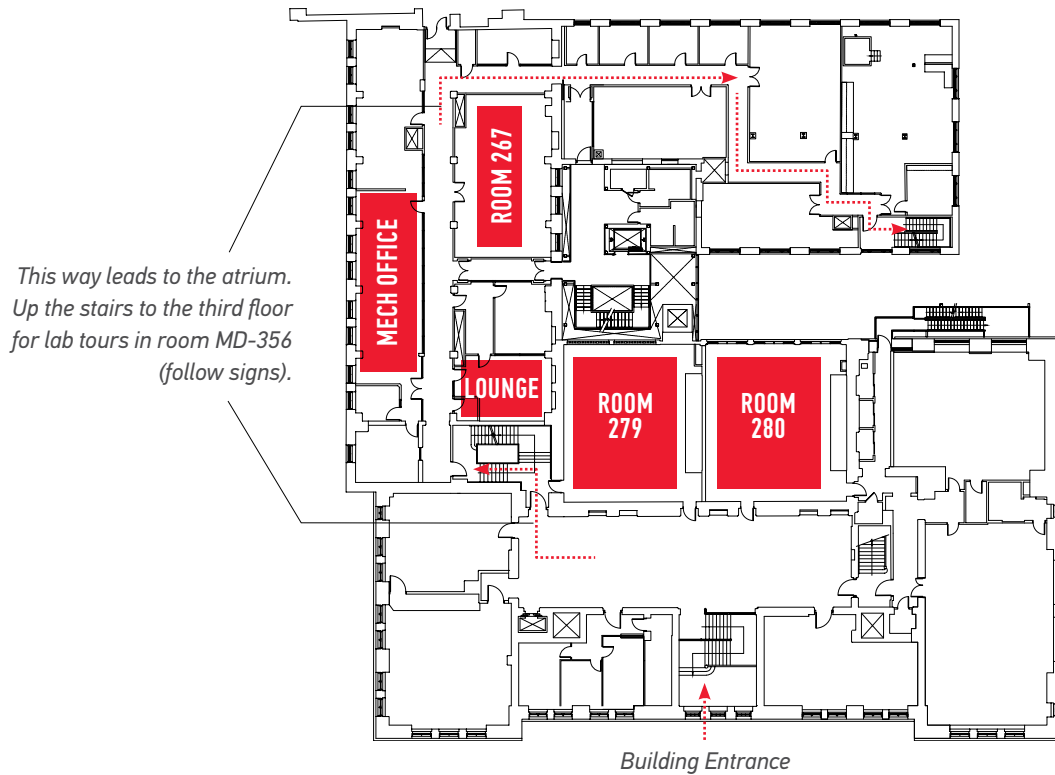
FLOOR MAP /
MACDONALD BUILDING

On Sunday June 2, the workshops are going to be in classrooms MD-279 and MD-280. Lunch will be served.

MACDONALD – 2ND FLOOR

This way leads to the atrium. Up the stairs to the third floor for lab tours in room MD-356 (follow signs).

ROOM 267

MECH OFFICE

LOUNGE

ROOM 279

ROOM 280

Building Entrance

GALA DINNER /
MONTREAL SCIENCE CENTRE

Photo: Centre des sciences de Montréal

The gala will take place at the Montreal Science Centre,
located in the Old Port, at the foot of St.Laurent Blvd., corner of de la Commune St.,
Place-d'Armes metro station.

The gala dinner will be animated by:
Marshal Herridge (bass), Sasha Olynyk (piano),
Baptiste Lejeune (drums), Laura Fasanella (voice)
and Thomas Morelli-Bernard (trombone – not in picture)
performing a mix of Quebecois art songs and
classical jazz standards.

HISTORY OF
THE AQL MEETING /

The first AQL meeting took place in Erlangen, Germany in 1996. The collaborative workshop forum was first intended to be a venue where voice laboratories in Europe (mainly from Germany), could meet annually to provide updates on their progress on different aspects of quantitative assessment of laryngeal functions, voice and speech, and to set new goals. This collaborative effort was funded by member laboratories, and the German Research Foundation (DFG), in conjunction with other European funding agencies, the laboratories' institutional funding mechanisms, and/or through grants from private industry. The first four AQL meetings were thus collaborative workshops between European member-laboratories, producing progress reports (see the table below). Non-member participants from other laboratories and nationalities were also involved.

Over the next four years (1996-2000), the AQL initiative grew very quickly and gained the respect and recognition of the international voice community. The meeting quickly expanded from 15 to 50 participants. Since its 5th tenure, the AQL 2001 Conference in Groningen, the Netherlands, the conference became international with worldwide participation and over 70 attendees. The following AQL International Conferences were held in Hamburg, Germany (2003); in Groningen, the Netherlands (2006); in Stockholm, Sweden (2008); and in Erlangen, Germany (2010). These international scientific meetings had a strong impact on voice research, through the publication of proceeding materials. Since the 9th AQL 2010, in Erlangen, Germany, student workshops aimed at disseminating voice science have been added to the scope. Funding for the student summer school was initially obtained from the COST Action 2103 "Advanced voice function assessment," for dissemination of scientific knowledge among scientists and students from the participating European nations. In July 2012, another voice conference, the 8th International Conference on Voice Physiology and Biomechanics, was similarly organized in cooperation with the COST Action 2103.

The AQL was first held outside Europe in 2013. The 10th AQL Conference, in Cincinnati, Ohio, further broadened the scope and outreach of the previous AQL conferences. The AQL returned to Europe in London, the United Kingdom, in 2015 where it was held in conjunction with the 4th International Occupational Voice Symposium. The 12th AQL was held in Hong Kong, the first AQL conference to be held around the Asia-Pacific Rim. The return of AQL to America for the 13th meeting in Montreal, Canada, closes a loop and establishes a pattern of rotation around the world for future conference locations.

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THANK-YOU! /

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AQL 2019

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