The 1st Canadian Aerosol Conference

CAC 2026

Conference Program

Tuesday, July 7

18:00 – 19:00 Welcome Reception & Registration (55 Laurier Ave E)

19:00 – 21:00 Billiards at MacLaren's (301 Elgin St)

Wednesday, July 8

08:00 – 09:00 **Registration & Coffee** (55 Laurier Ave E)

09:00 – 09:10 **Joel C. Corbin**, National Research Council Canada

Opening Remarks

09:10 – 10:10 **Keynote: Robert Nishida**, University of Waterloo

Charge-Based Measurement of Ultrafine Particles: From Mobility Spectrometers to Widely-Deployable Monitors

10:10 – 10:30 **Coffee Break**

10:30 – 12:00 **Atmospheric Aerosols**

10:30–10:45: **Doug R. Worsnop**, Aerodyne Research, Inc.

Atmospheric Aerosols: Mass Spectrometry, Air Quality and Climate

10:45–11:00: **Emmet D. Norris**, Université de Montréal

Environmental Monitoring for Industrial Sites (ÉMIS): A LoRa-Based Network for Real-Time PM Monitoring in Rouyn-Noranda, Québec

11:00–11:15: **Elisabeth Galarneau**, Environment and Climate Change Canada

Size distributions of aerosol number, mass, and chemical species from the Study of Winter Air Pollution in Toronto (SWAPIT)

11:15–11:30: **Andrew Martin**, University of Alberta

The transition to low global warming potential propellants in pressurized metered-dose inhalers

11:30–11:45: **Ian Coussons**, University of Toronto

Comparing Particle Size Concentrations for Dust Filtered on the International Space Station Versus Residential Buildings in Downtown Toronto

11:45–12:00: **Norm O'Neill**, Université de Sherbrooke

Analysis of multi-year fine mode aerosol remote sensing retrievals and microphysical measurements at a high-Arctic site

12:00 – 13:30 **Lunch**

13:30 – 15:00 **Wildfires & Combustion**

13:30–13:45: **Joel C. Corbin**, National Research Council
Nanochar: Black-carbon spheres formed by pyrolysis of wildfire-like organics

13:45–14:00: **Nour Elsagan**, National Research Council
Evaluation of MERV Filter Performance and Degradation Under Simulated Wildfire Smoke Exposure

14:00–14:15: **Atena Sombolestani**, University of Calgary
Bioaerosols in Wildfire Smoke: Implications for Asthma Exacerbations

14:15–14:30: **Yuetong Zhang**, University of British Columbia
Cellular Responses to Biodiesel and Diesel Exhaust from a Marine Engine

14:30–14:45: **Keyvan Ranjbar**, National Research Council
Airborne Observations of Wildfire Aerosols and Trace Gases Near Red Lake, Ontario

14:45–15:00: **Patrick Hayes**, Université de Montréal
Chemical transport modeling of wildfire smoke $PM_{2.5}$ in Canada: An evaluation of major emission inventories

15:00 – 15:30 **Coffee Break**

15:30 – 18:30 **Poster Session 1 (All Topics)**

19:00 – 21:00 **Conference Dinner**

Thursday, July 9

07:00 – 08:00 **Fun Run/Walk**

08:00 – 09:00 **Registration & Coffee**

09:00 – 09:10 **Welcome**

09:10 – 10:10 **Keynote: Errol Thomson**, Health Canada
Beyond mass: Mechanisms, metrics, and the hunt for determinants of PM health effects

10:30 – 12:00 **Health & Toxicity**

10:30–10:45: **Philip K. Hopke**, Clarkson University
Changes in Source Specific PM2.5: Unintended Consequences of Policy

10:45–11:00: **Scott Tavernini**, University of Alberta
The Alberta Lung Filter Apparatus: A Novel Instrument for Classification of Pharmaceutical Aerosols

11:00–11:15: **Arthur Chan**, University of Toronto
Emission of Atmospheric Nanoplastic Particles and Additives from Plastic Combustion Sources

11:15–11:30: **Camille Drouin**, Université Laval
Exposure to aerosols produced by vaping devices cause changes in the respiratory microbiota of mice

11:30–11:45: **Nicole Trieu**, University of Toronto
Comparison of PM2.5 Elemental Composition and Oxidative Potential in Two Canadian Subway Systems: Toronto and Montréal

11:45–12:00: **Chris Nickolaus**, Cambustion Ltd.
Indoor Air Quality measurements: volatile & non-volatile particle number measurement in a domestic environment during normal activities

12:00 – 13:30 **Lunch & AGM**

13:30 – 15:00 **Tours of Ottawa & Nearby Labs**

15:00 – 15:30 **Coffee Break**

15:30 – 18:30 **Poster Session 2 (All Topics)**

19:00 – 21:00 **CAAR-ACRA Brewery Night (Lowertown Brewery)**

Friday, July 10

08:00 – 09:00 **Registration & Coffee**

09:00 – 09:10 **Welcome**

09:10 – 10:10 **Keynote: Caroline Duchaine**, Université Laval
Bioaerosols: from the hospital, to the farm and beyond!

10:10 – 10:30 **Coffee Break**

10:30 – 12:00 **Bioaerosols & Indoor Air**

10:30–10:45: **Laurie Piché**, Université Laval
Role of long-term exposure to anthropogenic heavy metals and resistant bacteria in upper respiratory tract dysbiosis

10:45–11:00: **Nehul Agarwal**, University of Toronto
Bacterial concentration in residential apartments using quantitative and semi-quantitative filter forensics

11:00–11:15: **Cindy Dumais**, Université Laval

Airborne fungi in Nunavik dwellings: seasonality and climate-driven indoor conditions as key determinants

11:15–11:30: **Rébecca Gagnon**, UQAC
Urbanization and indoor-outdoor bioaerosol dynamics shape the airborne microbiome

11:30–11:45: **Erin Tavares**, University of British Columbia
Optimizing Portable HEPA Purifier Use in BC Long-Term Care Homes

11:45–12:00: **Zoe Hoskin**, University of Toronto
Effectiveness of an Educational Intervention on Portable Air Cleaner Use to Reduce Indoor PM2.5 in Residences in Toronto

12:00 – 13:30 **Lunch**

13:30 – 15:00 **Aerosol Instrumentation**

13:30–13:45: **Varun Yadav**, Aerosol Magee Scientific
Advanced Apportionment of Carbonaceous Aerosols Using High-Time-Resolution TC-BC Measurements

13:45–14:00: **Shabab Bin Karim**, University of Ottawa
The effect of inductance-controlled energy release rate on the plasma resistance and size distribution of copper nanoparticles generated by spark-discharge ablation

14:00–14:15: **Greg J. Smallwood**, National Research Council
Metrology of Aviation non-volatile Particulate Matter (nvPM): Developing a Global Black Carbon Emissions Standard for Aviation

14:15–14:30: **Judith Boudrias**, Université de Montréal
Metals and metalloids analysis by GED-SP-ICP-MS in airborne particles

14:30–14:45: **Jay G. Slowik**, Paul Scherrer Institute
Mobile and Highly Time-Resolved Measurements of Metals and Trace Elements using a new Microwave-Induced Plasma Time-of-Flight Mass Spectrometer

14:45–15:00: **Tyler J. Johnson**, Atmose Ltd.
Enhanced Charging of Aerosol Particles

15:00–15:15: **Daniel Troolin**, TSI Incorporated
Characterization of a compact water CPC for portable use

15:15 – 15:30 **Awards & Closing**

Poster Session 1 (Wednesday, July 8)

Atmospheric Aerosols

Sharon Tchougong, Université de Montréal

Characterization of mineral dust in high latitudes during cryodesiccation phases and environmental impacts

Angelos T. Anastasopolos, University of Rochester

Spatial-Temporal Variations in Source-Specific PM2.5: Investigation of the Calgary Metropolitan Region, Alberta, Canada

Julia Zaks, University of British Columbia

Biodiesel as a drop-in fuel increases marine-engine organic aerosol emissions by 1-2 orders of magnitude

Yuetong Zhang, University of British Columbia

Characterization of emission factors of diesel trucks at a roadside at a causeway

Cameron Varcoe, University of British Columbia

Roadside Characterization of Heavy-Duty Vehicle Non-Exhaust Particle Emissions Using Plume-Based Emission Analysis Methods

Parisa Afkari, ETS Montreal

Soot Particle Activation in Contrail Formation Using LES

Lucas Vargas, University of Toronto

Development of a Flow Tube to Investigate Aerosol Yield Using Environmentally Relevant Ammonia and Humidity Conditions

Bioaerosols & Indoor Air

Nathalie Turgeon, IUCPQ - Université Laval

What we learned about antimicrobial resistance genes in bioaerosols: a canadian multi-centre study

Nora WC Chan, DRDC Suffield Research Centre

A low burden broad-spectrum electrochemical pathogen sensor in a field trial

Rachel Tyli, University of Toronto

3D Facial Shape and Respirator Fit in Emergency Service Workers

Darryl M. Angel, Blueprint Biosecurity

Glycol Vapors in Emergency Airborne Pathogen Transmission Suppression

Samantha Leclerc, Université Laval

Detection of microorganisms and antibiotic resistance genes (ARGs) in the vicinity of swine barns and henhouses using conifer needles as passive samplers

Zichen Fan, University of Western Ontario

Investigation of the Effects of Nasal Flow and Dynamic Mouth Opening on Cough-Induced Airflow and Particle Dispersion: A Large-Eddy Simulation Study

Rudolph Jaeger, CH Technologies (USA) Inc.

Rayleigh breakup aerosol spray devices: Investigations into their toxicology and aerobiology applications

Mustafa Al-Zoughool, PhD, Kuwait University

Levels of Indoor PM2.5 and PM10 in Public High Schools in Kuwait

Annabel Zhang, Virginia Tech

Heterogeneity of Airborne Virus Transmission in the Built Environment

Health and Toxicity

Dr Kevin Hedges, Occupational Health Clinics for Ontario Workers Inc. (OHCOW)

Exposure to respirable airborne particulate matter containing crystalline silica, particle size distribution and morphology.

Miranda Jordens, Health Canada

Air-liquid interface exposures for the assessment of aerosol and mixture toxicity

Shrutika Kadam, Trent University

Mapping oxidative potential of winter air pollution in Toronto using passive samplers

Shrutika Kadam, Trent University

Tire-derived p-phenylenediamine antioxidants and their transformation products in particulate matter across Toronto: size distribution, inhalation bio-accessibility, and oxidative potential

Wildfires and Combustion

Sepehr Nikkho, University of British Columbia

Formation of Tar Balls in Wildfire Smoke Driven by Nighttime Chemistry

Mohamad H. Al-Jabiri, University of Toronto

Emissions from burning of relevant boreal forest materials: A PMF approach for combustion phase separation and MAC determination

Daniel S. Lu, Queen's University

Particle-nitrate and particle-sulfate emissions from wildfire smoke

Emily M. McCullough, Dalhousie University

Model-derived prevalence of forest fire smoke at Aerosol Limb Imager (ALI, on HAWCsat) measurement altitudes

Mohammad Adib, Carleton University

Yield, morphology and maturity of carbon black made by methane pyrolysis in a shock tube

Jay S. Dave, University of Saskatchewan

Urban-Rural PM2.5 Dynamics in Saskatchewan: Wildfire Amplification Effects

Harshit Gujral, University of Toronto

Learning the Tar–Char Continuum in Wildfire Smoke from SP2 Waveforms

Instrumentation

Zilin Zhou, Health Canada

Development of new targeted and non-targeted analysis methods for residential airborne contaminants

Devendra Pal, McGill University

AI-Enabled Nano Digital Inline Holography for In-Flight Aerosol Observations

Adnan Masri, Université de Montréal

Aerosol Filtration with Eco-Responsible Electrospun Nanofiber Media

Nishan Sapkota, University of British Columbia

Using size-based classifiers in tandem to calibrate and infer mixing state with an aerosol mass spectrometer

Joshua Harper, University of Waterloo

Demonstration of a Novel Ultrafine Sensor based on Pulsed Bipolar Charging

Joel C. Corbin, National Research Council Canada

Image analysis techniques for transmission electron microscopy analysis of carbonaceous and related particles and their application

Kristin Iorio, University of Toronto

Performance Evaluation of Low-Cost Sensors in a PM2.5-10 Dominant Environment

Christine Levesque, Health Canada

Method Development for Settled House Dust Resuspension to Isolate PM10 for Subsequent Characterization

Poster Session 2 (Thursday, July 9th)

Atmospheric Aerosols

Philip K. Hopke, Clarkson University

Urban Railroad Yards: An Underappreciated Source of Urban Black Carbon Particles

Anand Kumar, University of British Columbia

Fuel-Dependent Particulate Properties and Soot Structures in Marine Engine Emissions under Biodiesel and Conventional Diesel Operation

Eric Ward, University of Toronto

Developing a Robust Calibration Framework for Concentration and Size Distributions from Low-Cost Particulate Matter Sensors in the Greater Toronto Area

Keith Van Ryswyk, Health Canada

Exploring Heterogeneity in the Urban Spatial Pattern of Ultrafine Particle Number Concentrations Across Size Modes

Connor Overton, York University

Investigating chemical composition of size-resolved aerosol collected over the Yellow Sea during Fatima 2023

Rym Mehri, National Research Council Canada

Improvements in Calibration of Black Carbon Mass Instruments using the Centrifugal Particle Mass Analyzer-Electrometer Reference Mass Standard (CERMS)

Rin Takai, Mt Allison University

Impact of SO2 Emission Controls on Water-Soluble Iron in Fine Particulate Matter Air Pollution in Atlantic Canada

Simon J. Smith, Retired

Aerosol Filtration Requirements in Standards for Respiratory Protective Equipment

Bioaerosols & Indoor Air

Amanda M. Weiler, DRDC Suffield Research Centre

Collection and concentration of bacterial and viral aerosols by electrostatic precipitation (ESP) and electrowetting-on-dielectric (EWOD)

Michelle Secours, Frëtt Solutions

Sustainability in Air filtration

Paul Lebbin, National Research Council Canada

Coupled Computational Fluid Dynamics–Agent-Based Modeling of Airborne and Fomite Infection Risk in Gate-to-Gate Air Travel

Patricia H. Watanabe, University of Toronto

Multiplexing dPCR for Indoor Bioaerosol Surveillance and Detection

Elizabeth Thibeault, Université Laval

Caractérisation des bioaérosols fongiques dans l'air et de la résistance aux azolés d'Aspergillus fumigatus dans les fermes laitières

Christina Bouchard, Université Laval

Does the organic status impact air quality, microbial communities, and antimicrobial resistance genes in egg farms?

Zama Mahlobo, Stellenbosch University

Airborne bacterial communities and biological factors associated with their viability and survival.

Brooke Thompson, University of Saskatchewan

Antimicrobial-resistance genes in bioaerosols from Livestock Operations

Health and Toxicity

Andre Isaac Castillo, Royal Military College of Canada

Occupational Hazard Assessment of Hexachloroethane Smoke Devices used in military training exercises within the Canadian Armed Forces

Yang Wang, University of Alberta

Unveiling the Hidden Role of Zinc in Aerosol Oxidative Potential: From Coordination Competition to Metal Specific Interplay

Andres R. Henriquez, Health Canada

Characterization and toxicological assessment of size-fractionated brake wear particulate matter

Harshita Arora, University of Alberta

Crop-Specific Oxidative Potential of PM2.5 from Major Crop Residue Burning in India Assessed Using the Dithiothreitol (DTT) Assay.

Wildfires and Combustion

Liu Sun, Health Canada

Wildfire Smoke Exposure and Physiological Responses in Subsidized Housing in Metro Vancouver

Jahanbakhsh Jahanzamin, Carleton University

Towards monomer-resolved Discrete Element Models to predict soot fractal-like agglomerate thermal restructuring

Mahsa Zarei, University of Alberta

Optical Properties of Wildfire Smoke from Controlled Combustion of Canadian Biomass Fuels

Roshan Kumar Singh, IIT Kanpur

Emission Characterization of Indoor and Outdoor Biomass Combustion Sources Across the Indo-Gangetic Plain, India

Pourya Shahpoury, Alberta Ministry of Environment and Protected Areas

The impacts of forest fires on oxidative potential of air across Canada

Instrumentation

Marie-Pier Joncas Reid, Université de Montréal

Analyse par spectrométrie de masse à plasma à couplage inductif de métaux et de métalloïdes dans les particules aéroportées à proximité d'une zone industrielle

Morteza Kiasadegh, University of Alberta

Two-dimensional inversion routines for tandem mass-aerodynamic diameter measurements

Aiden Haddad, University of Ottawa

Numerical simulations of a new electrostatic quadrupole system for ultrafine aerosol particle focusing

Hussein Rashid, University of Ottawa

Design and calibration of an experimental ns-pulsed-laser cavity for aerosol ultrafine particle internal structure, morphology, and size control

Zaki A. Nasreddine, McGill University

Innovative AI-Driven Approach for Real-Time 4D Tracking and Physicochemical Analysis of Inorganic Carbonaceous Aerosols in Air and Water

Lily M. Mueller, University of Waterloo

The Effect of Charger Ion Properties on Particle Size Distributions using a Scanning Mobility Particle Sizer

Nishan Sapkota, University of British Columbia

Interpreting and reconciling classifier-order effects in effective density measurements

Tim Onasch, Aerodyne Research, Inc.

CAPS PMSSA Monitors for the In Situ Measurement of Particle Absorption

Girisankar Solaimalai, University of Waterloo

A CFD Based Residence Time Distribution Model for Aerosol Flows

Zuzana Gajdosechova, National Research Council Canada

Replacing Gravimetry: A Metrological Route For Aerosol Mass Calibration Using ICP-MS

Jalal Norooz Oliaee, National Research Council Canada

Self-calibrating aerosol absorption measurements using co-located TDLAS and tunable-wavelength photothermal interferometry