

Advancing Understanding: Exploring Current Research and Bridging Knowledge Gaps in Microplastics Science



Workshop Speaker Bios (January 16 – 17, 2024)

Sabina Halappanavar, PhD.

Research Scientist, Environmental Health Science and Research Bureau, Health Canada

Sabina Halappanavar is a Research Scientist at Health Canada (Ottawa) and an Adjunct Professor in the Department of Biology at the University of Ottawa, Canada. Her research is focused on investigating the early molecular origin of pulmonary diseases induced by inhalation toxicants. She is known internationally for her research on nanomaterials and micro/nanoplastics toxicity. She has established an Adverse Outcome Pathway (AOP) for substance-induced lung fibrosis, which was recently endorsed by the Organisation for Economic Co-operation and Development (OECD), supporting the potential design of animal reductive testing strategies for hazard and risk assessment of nanomaterials and nanomaterial-like substances. She has been an active contributor to the AOP and nanotoxicology research initiatives led by the OECD, WHO, and the European Union.

Dr. Todd Gouin

Research Consultant

Dr. Todd Gouin received his PhD specializing in the field of environmental chemistry from Trent University, in Canada in June 2006. Following his graduate studies, Dr. Gouin benefited from experiences working within regulatory, academia and industry positions all of which aimed at helping to support the risk assessment of a wide range of contaminants. He now provides research consultancy work on a range of topics, where his current activities include the development and application of risk assessment methods for particulates, such as microplastic particles, as well as the development and application of models to better assess chemical exposure and risk for both humans and the environment.

Dr. Bart Koelmans

Professor, Wageningen University

Dr. Bart Koelmans is an environmental chemist and ecotoxicologist by training who heads the Aquatic Ecology and Water Quality Department at Wageningen University. In the field of plastic research, his group aims to bridge the gap between conceptual and empirical approaches to obtain a mechanistic understanding of the risks of microplastic for human health and the environment. Bart is a global highly cited researcher (Clarivate analytics), advises international organizations like the World Health Organization, led international working groups about risks of plastic pollution, such as the European Commission's Science Advice for Policy by European Academies (SAPEA) expert group on Microplastics in Nature and Society, and is Editor-in-Chief of the journal *Microplastics and Nanoplastics*. More on: www.microplasticlab.com

Dr. Scott Coffin, Ph.D.

Research Scientist III, California State Water Resources Control Board

Dr. Scott Coffin is a research scientist and subject-matter expert for microplastics at the California State Water Resources Control Board, where he leads the agency's efforts to monitor and manage microplastics pollution in drinking water and the environment. Dr. Coffin has been researching the human and ecological health impacts of microplastics since 2014, beginning with his PhD in environmental toxicology from the University of California, Riverside.

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Dr. Nathalie Tufenkji

Professor and Canada Research Chair, McGill University

Nathalie Tufenkji is a Professor in the Department of Chemical Engineering at McGill University where she holds the Tier I Canada Research Chair in Biocolloids and Surfaces. She works in the area of particle-surface interactions with applications in protection of water resources, plastic pollution as well as the discovery of natural antimicrobials. Professor Tufenkji was awarded the Killam Research Fellowship, the Engineers Canada Award for the Support of Women in the Engineering Profession, the Chemical Institute of Canada Environment Award, a Research Excellence Award by the Faculty of Engineering at McGill University, the YWCA Woman of Distinction Award in Science and Technology, and the Hatch Innovation Award of the Canadian Society for Chemical Engineers. She was elected to the Royal Society of Canada in 2023 and the Canadian Academy of Engineering in 2020. Beyond her research and teaching roles, Professor Tufenkji also serves as Associate Director of the Brace Center for Water Resources Management at McGill and has co-chaired several major international conferences. She has also served on the editorial advisory boards of the journals *Environmental Science and Technology*, *npj Clean Water*, *Water Research*, *Colloids and Surfaces B*, *Advances in Colloid and Interface Science*, and *Environmental Science: Nano*.

Dr. Karl Jobst

Assistant Professor, Memorial University

Karl J. Jobst is an Assistant Professor in the Department of Chemistry at Memorial University of Newfoundland and Labrador. He obtained his Ph.D. in gas-phase ion chemistry from McMaster University under the supervision of Professor Johan K. Terlouw. His interests in the chemistry of interstellar clouds soon evolved into more earth-oriented research as a Visiting Fellow at Environment Canada, a Scientist with the Ontario Ministry of the Environment, as well as Adjunct Assistant Professor in the Department of Chemistry of his alma mater and in the Department of Physical and Environmental Sciences at the University of Toronto Scarborough. His current research focuses on the identification of emerging contaminants and understanding their environmental and human health impacts using novel mass spectrometry and computational methods. Dr. Jobst has (co)authored over 90 publications in peer-reviewed journals and serves on the editorial board of *Current Opinion in Environmental Science & Health*. In 2021 he received the Terra Nova Young Innovator award.

Dr. Michael Wade

Research Scientist, Health Canada

Dr Wade is a research scientist with the Environmental Health Science & Research Bureau of HECSB in Health Canada. He received his PhD at the University of Guelph and joined Health Canada in 1995. His primary research focus is mechanisms by which exposures to contaminants and commercial substances disrupt human development leading to life-long adverse effects.

Dr. Sarah Dudas

Research Scientist, Fisheries and Oceans Canada

Sarah Dudas is Research Scientist at Fisheries and Oceans Canada and an Adjunct Professor at the University of Victoria. Her research focuses on the biodiversity and conservation of coastal marine ecosystems including the emerging threat of microplastics.

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Dr. Santokh Gil

Research Scientist at RTRD

Dr. S. Gill works at Health Canada and conducts multidisciplinary research that examines the effects of xenobiotic including furan and its alkyl derivatives (furans), phthalates, seafood toxins, flame retardants, MSG, and microplastics using a combination of molecular, immunochemical, morphometric, and histological parameters. He uses both in vivo and in vitro models, and more recently developed in vitro mammalian stem cell models to assess neurotoxins. Currently, he is studying the impact of microplastics using in vivo and in vitro models. His research on furan and its derivatives has been recognized nationally and internationally. He has been invited for oral presentations and chaired multiple sessions. Dr. S. Gill has coauthored 45 articles, 3 book chapters and co-edited one book and on two editorial boards- Marine Drugs and Toxicologic Pathology.

Dr. Martin Wagner

Associate Professor, Norwegian University for Science and Technology

Martin Wagner is an Associate Professor for environmental toxicology at the Norwegian University for Science and Technology in Trondheim. His main research interest is in the impacts of plastic pollution and plastic chemicals on nature and human health. To study this, he works at the interface of ecology, toxicology, and chemistry combining in vitro, in vivo, and mass spectrometry approaches. As an expert on the societal and environmental impacts of plastics, he is consulting high-level policymakers (United Nations, European Commission) and is frequently featured by international media.

Dr. Patricia Corcoran

Professor, University of Western Ontario

Patricia Corcoran is a Professor of Earth Sciences at Western University who has investigated plastic pollution in sediment, surface water, air, soil, and fish over the past 14 years. Her current research focuses on the Laurentian Great Lakes and Canada's Arctic, through which she has contributed to the development of *Canada's Zero Plastic Waste Strategy* and NOAA's *Great Lakes Marine Debris Action Plan*. Patricia's investigations into plastic debris in the sedimentary record have been featured in many media outlets, such as *National Geographic Magazine*, the *Huffington Post*, *Science Magazine*, and the *New York Times*. She conducts interdisciplinary research and is a founding member of the *Synthetic Collective*, a group of scientists, artists, and cultural workers who collaboratively publish papers in science and art venues, give public talks, and exhibit artworks concerning plastic pollution.

Dr. Jennifer Provencher

Research Scientist, Environment and Climate Change Canada



Dr. Jennifer Provencher is a research scientist with the Ecotoxicology and Wildlife Health Division in Environment and Climate Change Canada. She has a BSc and BEd from the University of British Columbia, her MSc at the University of Victoria, and her PhD at Carleton University. Her post-doctoral work was done at Acadia University, where she was a Weston Fellow and a Liber Ero fellow focused on seabird conservation. Dr. Provencher has collaborated with partners across the Arctic since the 2007-08 International Polar Year, when she was a graduate student and visited the Arctic for the first time. Her work on plastic pollution in the Arctic dates to the 2000s, and her research team now works to explore both the fate and the effects of plastic pollution across Canada. She is currently the lead of the long-term seabird contaminants project under the Northern Contaminants Program (NCP) and is the co-chair of the Litter and Microplastics Expert Group (LMEG) for Canada under the Arctic Council's Arctic Monitoring and Assessment Program (AMAP).

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Dr. Shan Zou

Senior Research Officer, National Research Council



Dr. Zou is a Senior Research Officer and Team Leader for the Nanoscale Measurement Team at the Metrology Research Centre of the National Research Council Canada. She is also an Adjunct Professor in the Department of Chemistry at Carleton University. Her research primarily focuses on the development of nanoscale standards and measurement methods that support various applications in nanoscience. Additionally, she works on integrated multimodal techniques for characterizing nanomaterials and quantitatively detecting cancer cells, as well as assessing cellular mechanical responses to drug treatments. Dr. Zou has expertise in nanomechanics, surface functionalization, cytotoxicity measurements of nanomaterials, nanocomposite materials, and nanoscale plastics. Her goal is to contribute to a better understanding of how nanomaterials impact the environment and living systems and to advocate for the safe and responsible use of nanotechnology tools and nanomaterials. Currently, Dr. Zou serves as the Secretary for the ASTM International E56 Nanotechnology Committee and is a Member of the BIPM-CCQM Cell Analysis Working Group. She also holds the position of Vice President of the Canadian Society for Chemistry.

Dr. Garth Covernton

Postdoctoral Fellow in the Rochman Lab, University of Toronto

Garth Covernton is a Postdoctoral Fellow working in the Rochman lab (St. George campus) and the McMeans lab (Mississauga campus) as part of the [pELAstics project](#). He studies how microplastic exposure affects aquatic food webs using stable isotopes and fatty acids analyses.

Dr. Ryan Prosser

Associate Professor, University of Guelph

Dr. Prosser is an associate professor at the University of Guelph in the School of Environmental Sciences. His research group investigates the effect of substances (e.g., microplastics, pesticides, per- and poly-fluorinated substances) on aquatic and terrestrial ecosystems.

Dr. Anja Vogt

Research Officer, National Research Council

Anja Vogt is a Research Officer and Team Lead at the National Research Council Aquatic and Crop Resource Development Research Centre in Charlottetown, PE. The team is focused on analytical chemistry and downstream processing of marine, agricultural and fermentation-based materials. Anja is a food chemist with a Ph.D. in natural sciences from the University of Marburg, Germany and her research explores sustainable extraction methods using supercritical CO₂ and the analysis of lipid and volatile profiles of marine and agricultural materials. She is also leading a project investigating the biological effects of micro and nanoplastics in aquatic environments, with a focus on the ocean.

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Dr. Peter Ross

Senior Scientist and Program Director, Raincoast Conservation Foundation

Dr. Peter S. Ross is Director of the new *Healthy Waters* program at Raincoast Conservation Foundation in British Columbia. He has published over 160 scientific articles and book chapters on the fate and effects of a variety of pollutants of concern in the Pacific, Arctic, and Atlantic Oceans. Dr. Ross is an Adjunct Professor at UBC Department of Earth, Ocean, and Atmospheric Sciences, and at the UVic School for Environmental Studies. He is a frequent advisor to conservation teams in different parts of the world, and has provided advice in support of chemical regulation, species at risk, ocean disposal and ocean health. He has long valued his partnerships with Indigenous communities working in support of safe traditional seafoods. He recently served as the Vice-President of Research at Ocean Wise, where he founded the Ocean Pollution Research Program. Dr. Ross and his team at Ocean Wise launched *PollutionTracker* (<http://pollutiontracker.org/>), the first comprehensive monitoring program for pollutants of concern in coastal British Columbia; *Ocean Watch* (<https://research.ocean.org/program/ocean-watch>), a coast-wide ocean health report card; and the Plastics Lab, a dedicated high resolution facility working with industry, government agencies and academia on microplastic pollution. Prior to that, he served for 16 years as a federal Research Scientist with Fisheries and Oceans Canada. His work with priority pollutants and microplastics has led to numerous invitations to advise industry, government, the G7, the European Union, and the OECD. He is co-Chair of the MetroVancouver Public Advisory Committee for Liquid Waste Management, a member of the federal SR Killer Whale Technical Working Group on Contaminants, and a member of the City of Vancouver Project Advisory Group for its new Healthy Waters plan.

Dr. Anna Posacka

Chief Scientist, Ocean Diagnostics

Anna Posacka is the Chief Scientist at Ocean Diagnostics, a company focused on developing enabling tools for monitoring microplastic pollution and biodiversity loss. In her role, Anna leads the scientific projects and partnerships focused on microplastic method innovation and research to enhance the understanding of their sources, exposure, and implications. She also directs a newly established analytical laboratory that specializes in environmental microplastics, dedicated to serving a range of stakeholders in their microplastic evaluation, research, and solution development.

Dr. Jesse Vermaire

Associate Professor, Carleton University

Jesse Vermaire is currently an Associate Professor with the Institute of Environmental Science and cross-appointed with the Department of Geography and Environmental Studies at Carleton University in Ottawa, Canada. His research focuses on the long-term impacts of human activity on our freshwater resources. Jesse maintains research interests in human impacts on near-shore habitat in lake ecosystems, micro-plastic pollution of freshwater, and the environmental impact and recovery of aquatic ecosystems exposed to legacy contamination. He employs a number of approaches ranging from paleolimnology to bioindicators to understand the long-term impacts of human actions on freshwater systems to help inform management and conservation of lakes and rivers in a changing environment.