The Canadian Academy of Engineering


L'Académie canadienne du génie

# Media Release

## Fifty-four new Fellows elected into the Canadian Academy of Engineering

**Ottawa – (13 June 2022)** – President Yves Beauchamp announced the election of forty-seven new Fellows, six new International Fellows and one Honorary Fellow into the Canadian Academy of Engineering on June 13, 2022. The announcement is made in conjunction with the Academy's 2022 Annual General Meeting which was held by video conference. The Induction Ceremony, which will honor the 2020, 2021 and 2022 elected Fellows, has been scheduled for June 27, 2022 in Halifax, Nova Scotia.

Dr. Beauchamp commented: "Over the past 35 years, Fellows of the Academy have provided engineering leadership in the fields of education, infrastructure, innovation, energy, transportation, and many more. New Fellows have been selected for their outstanding contributions to engineering in Canada and around the world and for their service as role models in their fields and to their communities." Citations and photographs for each of the new inductees follow.

The Canadian Academy of Engineering (CAE) is the national institution through which individuals, who have made outstanding contributions to engineering in Canada, provide strategic advice on matters of critical importance to Canada and to Canadians. The CAE is an independent, self-governing, and non-profit organization established in 1987. Fellows of the CAE are nominated and elected by their peers, in view of their distinguished achievements and career-long service. Fellows of the Canadian Academy of Engineering are committed to ensuring that Canada's engineering expertise and experience are applied to the benefit of all Canadians.

The Canadian Academy of Engineering works in close cooperation with other senior academies in Canada and internationally. It is a founding member of the Council of Canadian Academies, along with the Royal Society of Canada (RSC) and the Canadian Academy of Health Sciences (CAHS). The CAE is also a member of the International Council of Academies of Engineering and Technological Sciences (CAETS), which includes 31 national engineering academies around the world and the Partnership Group for Science and Engineering (PAGSE), an association of more than 20 Canadian organizations in science and engineering, whose mandate is to educate and inform federal Parliamentarians, decision makers and other leaders of the importance and significance of Canadian research and innovation to economic development, and society as a whole.

**For additional information or interviews, please contact:**
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# NEW FELLOWS 2022

## Brian Baetz, Professor Emeritus and Director, W Booth School of Engineering Practice and Technology, McMaster University

A visionary, Dr. Brian Baetz pioneered modern techniques and thinking in Civil, Environmental, and Systems Engineering. A Fellow of the Canadian Society for Civil Engineering, Baetz made pioneering contributions in solid waste management and later energy and environmental systems modelling and decision support frameworks. As a professor at McMaster and Tulane Universities, Baetz established groundbreaking programs to strengthen sustainability and societal dimensions in engineering practice at both the undergraduate and graduate level. Although his impact has been global, Baetz continues to apply his expertise locally in his community engagement activities for the preservation of the Niagara Escarpment.

## Ruxandra Botez, Full Professor, Canada Research Chair Holder Tier 1 in Aircraft Modeling and Simulation Technologies, Head of the Laboratory of Active Controls, Avionics and AeroServoElasticity LARCASE, École de technologie supérieure

Dr Botez is Full Professor at l'École de Technologie Supérieure, holds a Canada Research Chair Tier 1 in Aircraft Modeling and Simulation, and is Head of the Laboratory in Active Controls, Avionics and AeroServoElasticity. She graduated over 400 students and completed major projects as academic leader with leading aerospace industry companies including Bombardier, Bell Helicopter, CAE, CMC Electronics, FLIR Systems, GlobVision, Hydra Technologies, Presagis, Thales, Alenia, and international research centres including CIRA, DLR, FOI, INCAS, NASA, NRC and with NATO. She has more than 500 peer reviewed publications, has led her team to more than 60 prizes, awards and recognitions, she is Fellow of the Royal Aeronautical Society RAeS and Associate Fellow of the Canadian Aeronautics and Space Institute CASI and of the American Institute of Aeronautics and Astronautics AIAA.

## Keith B. Brown, Director of Design Engineering, Nuclear Promise X Inc.

Keith Brown has over 30 years of diverse military, research, technical, and business experience marked by providing strong leadership and service to the engineering profession. Dr. Brown is an innovative and collaborative practitioner known for his expertise in instrumentation and control systems as they pertain to power generation. He was President of IEEE Canada (2012-2013) and member of numerous other volunteer boards. Dr. Brown's commitment to the Canadian power industry and the engineering profession is evidenced through the awards and honours received over the course of his career, recognizing both his technical excellence and outstanding leadership.

# NEW FELLOWS 2022

## Thomas Browne, Principal, Tom Browne and Associates

Dr. Browne is a world-class expert on the technical and economic aspects of Biorefineries, which will contribute significantly to the global climate change mitigation effort. His work resulted in novel bioprocesses and in Canada's first commercial-scale Biorefinery to produce green bioproducts and feedstocks. Dr. Browne participated in founding an NSERC Strategic Network focused on lignin, and developed critical partnerships with industry and academia in Canada and abroad to advance the Biorefinery concept and establish Canada as an important participant in the global bioeconomy. His expertise is relied upon to guide policy development and R&D activities for the forest sector.

## Patrick Carlson, Chief Executive Officer, Kiwetinohk Energy Corp.

Pat Carlson is an internationally respected chemical engineer and business leader contributing to many successful start-up ventures enhancing the economic security of communities and connecting Canadians from coast to coast to great opportunities in innovation and entrepreneurialism. Spending much of his career building and leading oil and gas operating companies, Pat is known for his seamless integration of environmental and entrepreneurial themes leading to transformative disruption of the status quo. Passionate about the environment and making a broader social impact, Pat works to integrate themes and awareness of sustainability, climate change, and Indigenous inclusion into activities that continue today.

## Bing Chen, Professor, UArctic Chair, and Associate Dean (Acting), Faculty of Engineering and Applied Science, Memorial University

Dr. Chen is an internationally respected leader in environmental engineering. He has made significant contributions to oil spill response and persistent/emerging pollution mitigation in cold regions and oceans. He has (co-)authored over 470 publications and trained over 80 research graduate students and post-doctoral fellows. He is the founding Director of a global Network on Persistent, Emerging and Organic PoLlution in the Environment (PEOPLE) a world-leading network in emerging pollution R&D. He is a Fellow of the Engineering Institute of Canada and the Canadian Society for Civil Engineering and a Member of the Royal Society of Canada (College).

# NEW FELLOWS 2022

## Guohua Chen, Otto Poon Charitable Foundation Professor of Smart and Sustainable Energy; Chair Professor, Energy Conversion and Storage, The Hong Kong Polytechnic University

Dr. Guohua Chen is an outstanding chemical engineer, a renowned expert in electrochemical technologies for sustainable development, a highly successful mentor and university administrator. He leads the commercialization of proprietary technologies for energy storage applications, with world leading performance. He has published over 300 journal papers with very top academic impact. He is an assiduous advocate for global collaboration, serving on a number of international councils and editing for prestigious journals, including CanJChE, CJChE, SEPPUR and PSEP. He is a fellow of AIChE and HKIE, respectively. He works enthusiastically in increasing chemical engineering impact globally.

## Chi Yung Chung, Professor and SaskPower Chair in Power Systems Engineering, University of Saskatchewan

Professor Chung is an internationally renowned researcher and educator in power systems engineering. His pioneering works on power system stability and operation and on the development of smart grid technologies have been widely used in power industries and significantly contributed to the prevention of large-scale power blackouts, modernization of power grids, and massive integration of renewable energy. His leading-edge research and contributions to education, industry, and learned societies have been recognized with distinctions including IEEE, EIC, IET, and HKIE fellowships, IEEE PES Distinguished Lecturer, IEEE Canada P. Ziogas Electric Power Award, and Saskatoon Engineering Society Educator of the Year Award.

## David A. Clausi, Professor and Associate Dean – Research & External Partnerships, University of Waterloo

Dr. Clausi is a Professor in Systems Design Engineering and the Associate Dean of Research & External Partnerships (ADR) for Engineering at the University of Waterloo. He is a renowned computer vision expert who has made exceptional research, entrepreneurship, and leadership contributions in multiple fields including biomechanics, biomedical, remote sensing, and sports analytics. A highly accomplished researcher, inventor and scholar, he has designed algorithms to interpret satellite imagery, detect skin cancer, model embryonic development, and automate ice hockey analytics. As ADR, he has strategically grown Waterloo Engineering and taken leadership to raise the University's research profile.

# NEW FELLOWS 2022

## Kenneth Coley, Dean and Professor, Western University

Professor Coley is an international leader in the field of chemical process metallurgy and received many awards for his outstanding contributions to the industry. As Dean of Western Engineering, he tirelessly advocates for diversity, student success and experiential learning and is leading the Faculty to create innovative new programs. Previously at McMaster University, Coley led the development of several innovative programs, was an architect of McMaster's Biomedical Engineering program, and the originator of McMaster's Pivot initiative. He is also an outstanding research mentor; six alumni from his research group are professors in major institutions globally.

## Duane Cronin, Professor and Canada Research Chair, University of Waterloo

Professor Duane Cronin is an internationally recognized expert in trauma biomechanics, human body modeling (HBM), and material characterization. He established a new Canadian research program to link materials, impact, and trauma biomechanics research, significantly advancing the fields of crash safety and protection of humans in extreme environments. Dr. Cronin and his team have developed leading computational HBMs used globally by industry, government and academics to improve human safety. Prof. Cronin's high level of scholarship and dramatic impact on the academic community and industry demonstrates his global presence and the impact of innovative research to save lives.

## Michelle George, Vice President, New Energy Technologies, Enbridge Inc.

As an influential leader, Michelle George has blazed the trail for women in operations, engineering, and construction. She is an authentic, intelligent, and well-respected engineer with a seat at the most senior table at Enbridge. Michelle is currently the Vice President of New Energy Technologies, delivering innovative projects and bringing low carbon commitments to life, including exciting work to introduce renewable natural gas and hydrogen into the natural gas system to green Ontario's energy grid. As a professional engineer for over 25 years, Michelle develops simple and strategic solutions to complex technical problems.

## Hanping Hong, Professor, Department of Civil and Environmental Engineering, Western University

Professor Hanping Hong has made outstanding contributions to the reliability-based design code development and codified structural design practice. His original work has helped the understanding of wind, snow, and earthquake hazards affecting the Canadian building stocks and infrastructure system and significantly strengthened Canada's position as a leading player in developing information-sensitive and risk-consistent structural design practices. Dr. Hong has also made outstanding contributions to the engineering profession through his passion for research and dedication to mentoring and teaching the next generation of great young researchers and engineers.

# NEW FELLOWS 2022

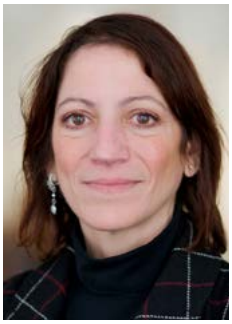
## Karim S. Karim, Associate Vice President, Commercialization and Entrepreneurship and Professor of Electrical and Computer Engineering, University of Waterloo

Karim Sallaudin Karim is a Professor in the University of Waterloo's Department of Electrical and Computer Engineering and is a Founder and the Chief Technology Officer of KA Imaging. Dr. Karim both pioneered innovative X-ray technologies and then led the commercialization effort via KA Imaging. His research has led to the world's first portable, dual energy X-ray detector, with superior accuracy that enables early disease detection of cardiopulmonary and musculoskeletal disorders. The technology is now used in hospitals in seven countries to replace black and white X-rays. Dr. Karim has 250 academic publications and 80 international patents.

## Gregory Kopp, Professor, Western University

Professor G.A. Kopp is an internationally renowned expert in the field of wind engineering, in the areas of building aerodynamics and wind tunnel testing, the effects of severe storms on the built environment, and the occurrence of tornadoes in Canada. He has transformed approaches to identifying tornado occurrence and classification as a co-founder of the Northern Tornadoes Project and transformed design of building components and cladding under severe wind loads through the development of pioneering test methods at the '3 Little Pigs' Project together with many theoretical developments. His research is widely used in wind design standards around the world.

## Gail Krantzberg, Professor, Masters of Engineering and Public Policy Program, McMaster University



Dr. Gail Krantzberg has dedicated over thirty years to help Great Lakes communities rehabilitate and build a sustainable future for their most valued and strategic water assets. She designed rigorous, multi-disciplinary frameworks involving engineers, applied scientists, governments, and communities to launch effective and sustainable initiatives. The many public policies and agreements that she led or contributed to continue to protect Great Lakes health to this day. Her outreach activities have raised public awareness to contemporary environmental challenges. Currently a professor in Engineering at McMaster University, she has built innovative programs to bring sustainability and multidisciplinarity to engineering.

# NEW FELLOWS 2022

## Amit Kumar, Professor, NSERC/Cenovus/Alberta Innovates Associate Industrial Research Chair in Energy and Environmental Systems Engineering, Cenovus Energy Endowed Chair in Environmental Engineering, Deputy Director - Future Energy Systems, University of Alberta

Dr. Amit Kumar is Professor of Mechanical Engineering at the University of Alberta and one of few researchers globally whose models integrating environmental and economic factors in energy systems assessment feed into government and industry decision-making. He is a highly cited expert in energy systems and an NSERC Industrial Chair. He has served on expert panels for the European Union, National Science Foundation-USA, House of Commons, Senate of Canada, and others. He received the 2020 Summit Award for Research Excellence from the Association of Professional Engineers and Geoscientists of Alberta and is a Fellow of the Canadian Society of Bioengineering.

## Hanif Ladak, Professor, Electrical & Computer Engineering, Western University

Dr. Hanif Ladak is internationally known for his engineering innovations in medical imaging, hearing healthcare technologies, and simulation platforms for training of clinicians and surgeons. He holds three patents that are licensed by multinational imaging companies, and he has been involved in the formation of several companies focusing on imaging and simulation. His work has been recognized by the National Institutes of Health (USA), and he was inducted into the Collegium Oto-Rhino-Laryngologicum Amicitiae Sacrum, an international organization that brings together leaders in ear-nose-throat research. He is a superb engineering educator whose students have received numerous awards and have become leaders.

## Jonathan Jun Li, Professor, University of Waterloo

Dr. Jonathan Li is a world-class researcher in geomatics and remote sensing. His pioneering contributions in AI-based earth-observation image understanding have substantially impacted the development of high-definition mapping technology in Canada and beyond. His innovations include the generalized point-cloud descriptors and the intelligent point-cloud to 3D model convertors, which have significantly advanced the field of 3D vision. He has published 320+ journal papers and trained 120+ graduate students and post-doctoral fellows. He received the Samuel Gamble Award and the Geomatica Award. He is the President-elect of the Canadian Institute of Geomatics and a Fellow of the Engineering Institute of Canada.

# NEW FELLOWS 2022

## Ming Li, Professor, University of Waterloo

For his contributions in building large-scale bioinformatics systems that has enabled modern proteomics projects worldwide; his contributions in designing an antibody sequencing pipeline that has helped to enable a modern antibody sequencing industry; his contributions to significantly improving de novo sequencing accuracy which is key to enable personalized cancer immunotherapy; and his contributions to a modern information theory Kolmogorov complexity via his book "An introduction to Kolmogorov complexity and its applications" that is read and cited widely and has impacted people's conception of modern information as well as applications of the such understanding to engineering, technology, and science.

## Jie Liang, Professor, Simon Fraser University

Prof. Jie Liang is an internationally renowned researcher in image and video compression. His research results have been adopted by industrial products and international standards such as Microsoft Windows Media Video Player and Blu-ray Disc. He made lasting contributions to the graduate program of School of Engineering Science at Simon Fraser University (SFU), and received the SFU Leadership Award. He has been the President of AltumView, leading the development of a smart sensor system to tackle the global aging population challenge. The product was selected by CES as an Innovation Award Honoree and by Amazon to integrate into Alexa Together.

## Hugh Hong-Tao Liu, Professor, University of Toronto

Dr. Hugh Liu, a Professor at the University of Toronto Institute for Aerospace Studies, is an internationally renowned researcher in aircraft systems and control. His research has been patented and applied by industry and has also led to a start-up company. A leader in his professional community, Dr. Liu serves on editorial boards of leading journals and technical committees of international societies. He is a Fellow of the Canadian Society for Mechanical Engineering and the Engineering Institute of Canada and an Associate Fellow of the Canadian Aeronautics and Space Institute and the American Institute of Aeronautics and Astronautics.

## Ben Li Luan, Adjunct Professor, Western University

Dr. Luan proudly serves his engineering profession as an accomplished innovator, a passionate educator, and a visionary entrepreneur with original designs and scientific discoveries contributing to energy, environment, and health. His accomplishments and influence are recognized through leaderships in international initiatives, national green manufacturing demonstrations, industry consortiums, training of HQP's, and commercialization of innovative technologies in advanced manufacturing, energy and environmental materials, and materials surface engineering. As a Professional Engineer, Dr. Luan also devotes his passion promoting Canadian engineering ethics and generously donating his time and expertise through non-profit organizations for engineering training and sustainable development in Canada and internationally.

# NEW FELLOWS 2022

## Lynnette Madsen, Visiting Professor and Scholar, Cornell University; Program Director, National Science Foundation

Dr. Madsen made seminal advances to thin film research and innovation in nitrides, carbides, glasses, and complex oxides in a career spanning industry, academia, and government in Canada and abroad. From this platform of experience and expertise, she also developed a legacy in public service where she adeptly established industrial connections, created strong communities, and increased and leveraged funding through interagency and international cooperation.

## Ted Mao, President, MW Technologies Inc.

Dr. Ted Mao, past Vice president, Research and Chief Technology Officer at Trojan Technologies is an internationally recognized UV expert and water innovator. He led science and innovation to drive global business growth and technology adoption, aiding over 1 billion people with safe and clean water. He is a passionate talent developer and entrepreneur who has led 355 Mitacs units and has been helping Cleantech start-ups to commercialize game-changing technologies to reduce GHG emissions, half gigatonne per year by 2050. He has played a significant leadership role in IUVA to help UV get adopted to stop the spread of SARS-COV-2.

## Eric Martel, President and Chief Executive Officer, Bombardier

Éric Martel is a seasoned senior executive with an inspiring leadership style. He is recognized for his ability to deliver outstanding business results, perform strategic and cultural turnarounds. Electrical engineer by trade, he has occupied many important leadership positions within renowned multinational corporations in the aerospace and energy sectors. He possesses a broad international business development and large-scale operations managing experience. He is currently President and Chief Executive Officer at Bombardier, a global leader in aviation, creating innovative and game-changing planes. The company is present in more than 12 countries including its production/engineering sites and its customer support network.

## Alison McGuigan, Professor, University of Toronto

Dr. Alison McGuigan, a professor at the University of Toronto, is a leader in the field of tissue engineering and disease modelling. Her group applies methods from materials and chemical engineering to assemble artificial tissues in a dish to accelerate drug discovery and the development of next-generation regenerative therapies. She has also trained more than 80 researchers and developed several innovative graduate research training tools. The impact of her work has been recognized with prestigious national and international awards, including the CSChE Hatch Innovation Award and the Tissue Engineering and Regenerative Medicine International Society Americas Young Investigator Award.

# NEW FELLOWS 2022

## Kibret Mequanint, Professor, Western University

Kibret Mequanint is an internationally renowned leader and innovator in the application of chemical and polymer engineering principles to medicine. His discoveries span multiple areas of biomedical engineering including radiotherapy dosimeters for accurate radiation dose measurements, tissue engineering and regenerative medicine, bio-inspired tissue adhesives, and injectable biomaterials. Several of his discoveries have been licensed/commercialized, thus positively impacting human health. His dedicated strategic initiatives to engineering capacity building and his work on accessible medical devices for poor and resource-scarce communities exemplify his broader impact. His creativity and innovation led to several recognitions from learned societies and organizations in Canada and abroad.

## Sue Molloy, Chief Executive Officer, Glas Ocean Electric

Sue Molloy, PhD (Naval Architectural and Ocean Engineering) is the CEO of Glas Ocean Electric. In 2021 Sue and her team won the Lieutenant Governor's award for Excellence in Engineering. Sue is a board member of the Council of Canadian Academies and former elected member of Engineers Nova Scotia. Sue is currently the Canadian Chair of ISO TC 8, (Ships) and an international convenor for IEC. Sue won the IEC 1906 award for her contributions to the development of international standards and was invited to give the prestigious Canada Ocean Lecture. Sue teaches about energy and oceans at Dalhousie University.

## George Nakhla, Professor & Salamander Chair of Environmental Engineering, Department of Chemical and Biochemical Engineering, Western University

Professor Nakhla has made major contributions to wastewater treatment research and practice. His original work has helped transform the wastewater industry in Ontario. His leadership in developing the first full-scale wastewater research facility in Canada significantly strengthened Canada's position as a key player in the development of wastewater treatment technologies. Dr. Nakhla has also made outstanding contributions to the engineering profession through implementation of innovative wastewater and biosolids technologies and creative engineering process design, his infectious passion for applied research tackling practical challenges, and tireless dedication to developing the next generation of great young engineers.

# NEW FELLOWS 2022

## Moncef Nehdi, Professor and Chair, Department of Civil Engineering, McMaster University

Professor Nehdi is globally acclaimed for pioneering research on sustainability, machine learning, and cement-based materials. His seminal work impacted world landmark structures and beneficiated colossal agricultural, mining, and industrial by-products worldwide. A visionary leader in industry and academia alike, he was technical manager for three companies and taught in four universities. A prolific author listed among the world's top scholars, he is fellow of the Engineering Institute of Canada, American Concrete Institute, and Canadian Society for Civil Engineering. He received numerous awards including Professional Engineers Ontario R&D medal, Ontario Premier's research excellence award, CSCE's Holt Lepholz medal, CSCE's E. Whitman Wright Award, American Concrete Institute award for professional achievement, and UK's Institution of Civil Engineers Bill Curtin Medal.

## Maria Anna Polak, Professor, University of Waterloo

Dr. Maria Anna Polak is renowned in the field of structural engineering, with pioneering contributions to the design and testing of concrete and reinforced concrete structures. Her innovations include new technologies for the retrofit of concrete slabs, powerful analysis tools for evaluation and testing of design standards, global structural damage assessment methods, and fibre-reinforced polymers. Implemented worldwide, Dr. Polak's work has directly contributed to international standards for infrastructure design. She sits on numerous international standards committees, is a Fellow of the American Concrete Institute and the Canadian Society for Civil Engineering and is recipient of prestigious Alexander von Humboldt Fellowships.

## John Preston, Associate Dean Research, Innovation and External Relations, McMaster University

Dr. John Preston's seminal contributions have been at the interface of research and education. His passion is leading collaborative research efforts to address major societal challenges and to integrate the education of students into that mission. His accomplishments include doubling the research output of McMaster Engineering, growing its undergraduate research program to be the largest in Canada, increasing startups by 400% and expanding the Faculty's international presence. Most recently, at the start of COVID-19, he created a massive effort to support PPE testing and manufacturing leading to the Minister's Awards of Excellence from the Ontario Ministry of Colleges and Universities.

# NEW FELLOWS 2022

## Wei Qiu, Interim Associate Dean (Research), Faculty of Engineering and Applied Science; Professor, Department of Ocean and Naval Architectural Engineering, Memorial University

Dr. Wei Qiu is a Professor of Ocean and Naval Architectural Engineering Department at Memorial University. He is one of the world's leading specialists in marine hydrodynamics. He has developed several novel ship motion programs and led many collaborative research initiatives involving national and international partners. As an expert in his field and representing Canada, he has been involved in many international technical committees, including the International Towing Tank Conference (ITTC) Ocean Engineering Committee, the International Ship and Offshore Structures Congress (ISSC) Environments Committee and the Joint ITTC/ISSC Committee. He has led the establishment of CISMaRT.

## Ajay Ray, Professor, Western University

Ajay Ray is an internationally renowned researcher, leader, educator, and mentor in chemical engineering. He has made seminal research contributions in the field of solar photocatalysis, moving bed technology and optimization. His applied research ranges from synthesis of novel eco-friendly materials for renewable energy, and clean potable water, devising innovative approaches of process intensification for purification of biologics, and application of multi-objective optimization in the improvement of industrial chemical processes. His research resulted in a deep understanding of technologies for applications in energy, environment, food, health, and water, the humanity's most important challenges for next generation.

## Sohrab Rohani, Professor, Chemical and Biochemical Engineering, Western University

Dr. Rohani has authored more than 340 refereed journal articles, presented 57 plenary/invited lectures, contributed 19 book chapters, and 1 book. His citations are over 13,315, his h-index is 56, and his i10-index is 248. Dr. Rohani has designed advanced control systems for the pharmaceutical and potash crystallizers. He has developed a technology to convert coal fly ash to a useful by-product. He has developed a light oxygen concentrator for medical applications. Dr. Rohani is a dedicated teacher and has always received high students' evaluation. Dr. Rohani has served the community and the profession throughout his career.

# NEW FELLOWS 2022

## Hojjat Salemi, Chief Business Development Officer, Ranovus Inc.

Mr. Hojjat Salemi is one of the known Canadian entrepreneurs who establish several high-tech companies in Ottawa. Currently, he is the Chief Business Development Officer at RANOVUS. Prior to RANOVUS, Hojjat was a cofounder/executive of Cortina System and Skystone Systems. These companies got acquired by Inphi/Marvell and Cisco Systems – at present they have main R&D campuses in Ottawa, Canada. Hojjat received B.SC. and M.A,Sc. from Ottawa University. Hojjat is the recipient of 2010 of Engineering Alumni Award of Excellence, Ottawa University. Hojjat holds numerous of patents and publications, and he is an industrial advocate of entrepreneur in Canadian Universities.

## Clara Santato, Professor, Polytechnique Montreal

Clara Santato is a Professor of Engineering Physics at Polytechnique Montreal and a holder of the Canada Research Chair in Sustainable Organic Electronics. She leads trailblazing research in organic and sustainable electronics in her mission to rid the planet of e-waste. She has also rallied an international coalition of academics, industrialists and NGOs to create CREATE SEED - a unique network to train the next generation of engineers in sustainable electronics design. She has over a 100 publications in reputable journals and books and was recently bestowed the prestigious MRS Communication Lecture Award, one of the highest honours in materials science.

## Craig Simmons, Professor, University of Toronto

Dr. Craig Simmons is the Distinguished Professor in Mechanobiology at the University of Toronto and Scientific Director of the Translational Biology and Engineering Program in the Ted Rogers Centre for Heart Research. A world leader in the field of mechanobiology, Dr. Simmons has made pioneering contributions in understanding how biomechanical forces contribute to heart valve disease and regeneration and has developed lab-on-a-chip microtechnologies to model tissues and organs for drug discovery. He is a Fellow of the Biomedical Engineering Society, the American Institute for Medical & Biomedical Engineering, the Engineering Institute of Canada, and the Canadian Society for Mechanical Engineering.

## Michael Soligo, President & Chief Executive Officer, Rowan Williams Davies & Irwin Inc.

With a passion for Redefining Possible, Michael Soligo is an Environmental Engineer specializing in the field of Climate/Microclimate impacts. He has worked on notable projects around the world, including the Burj Khalifa, the Grand Mosque in Mecca, the Shanghai Tower, and many others including those related to sports, entertainment, healthcare, and transportation. The President and CEO of RWDI since 2008, Michael has grown the company from a small Canadian niche wind engineering firm to an internationally recognized global specialty engineering consulting firm of approximately 700 employees. Michael's strategic vision and commitment to innovation has shaped RWDI into a leading global Climate and Environmental engineering firm, with a unique contribution to the field of sustainability, resiliency, and climate change.

# NEW FELLOWS 2022

## Nathan Stubina, V.P. Technologies, Sherritt International

Throughout his distinguished career, Dr. Nathan Stubina has provided superb engineering leadership at major metallurgical companies including Sherritt International Corporation where he serves as Vice President (Technologies). As confirmed by his publications, patents, awards and invited lectures within Canada and countries abroad, he has been eminently successful in the generation and application of innovative strategies associated with the processing of non-ferrous and precious metals. Dr. Stubina has also made substantial contributions within professional organizations as exemplified by his service as Vice President International of the Canadian Institute of Mining, Metallurgy and Petroleum, and President of the Metallurgy and Materials Society.

## Shuhui Sun, Professor, Institut National de la Recherche Scientifique (INRS)

Professor Shuhui Sun is an internationally renowned researcher in nanotechnology and sustainable energy. He has made major contributions to developing next-generation fuel cell, hydrogen energy, and battery technologies, aiming to address energy shortage and environmental challenges in a cost-effective way. His work has been recognized through multiple awards and distinctions, including the Member of the College of Royal Society of Canada, International Association for Hydrogen Energy Research Award, and ECS-Toyota Fellowship among others. He is the Vice President of the International Academy of Electrochemical Energy Science, and serves as the editor and editorial board member of over ten scientific journals.

## Zhongchao Tan, Professor, University of Waterloo

Dr. Tan is an international authority on filtration and separation technologies. His scholarly publications have reached $1.7 million downloads globally; his award-winning research and innovation significantly strengthened Canada's global leadership in sustainability, including a major patent licensed by Enersul Inc. As a visionary leader, Tan spearheaded multiple platforms, creating a positive and inclusive environment for knowledge mobilization, talent exchange, and training of the next generation of young engineers with a global vision. He is a Fellow of the Canadian Society for Mechanical Engineering and received numerous other scholarship-based awards; his innovative teaching method and textbooks also won him multiple teaching awards.

# NEW FELLOWS 2022

## Fiorenzo Vetrone, Full Professor/Professeur Titulaire, Institut National de la Recherche Scientifique (INRS), Université du Québec

Professor Fiorenzo Vetrone is a pioneer in the field of upconverting rare earth doped nanoparticles and published the first paper that launched this new field of research. His highly cited work is internationally regarded and has led to breakthroughs in unravelling the photophysics of upconversion at the nanoscale as well as opening doors to new diagnostic and therapeutic tools for cancer and other diseases. He has been bestowed numerous awards including the Rutherford Memorial Medal (Chemistry) from the Royal Society of Canada and the Keith Laidler Award for excellence in physical chemistry from the Canadian Society for Chemistry among others.

## Malcolm Xing, Professor, University of Manitoba

Dr. Malcolm Xing is a Professor in the Mechanical Engineering at the University of Manitoba. He has made outstanding contributions to high-performance hydrogels for wound healing, hemostasis, myocardial infarction, and bone defect. Dr. Xing is a leading expert in developing nano-gel self-assembly on cells and drugs for hair regeneration, controlled release, and cancer therapy. He has also contributed to the sustainable environment by developing plant-wearable sensors for green agriculture and portable clean-water devices. Dr. Xing has played active roles and services in promoting biomedical engineering education and research to the public and communities. He is now a fellow of AIMBE.

## Chunsheng Yang, Senior Research Officer, National Research Council Canada

Dr. Yang is a Senior Research Scientist at the National Research Council Canada. He is an internationally renowned leader in applied Artificial Intelligence. Throughout his career, he has made significant contributions to Applied AI, including machine learning, hybrid reasoning, and intelligent systems. In particular, he developed a transformative AI-based PHM(prognostic and health management) technology for smart maintenance of complex systems, which has been applied to various industry sectors such as aerospace, railway, and energy, to improve the reliability and availability of the complex systems.

## Yi Zhang, Vice-President R&D, CTO, RTDS Technologies Inc.

Dr. Yi Zhang is a world-renowned expert in real-time power-system simulation. He has provided exceptional leadership as VP R&D and CTO of RTDS Technologies Inc., the world's largest real-time simulator manufacturer. He has personally developed and directed the development of many key features that make real-time simulation relevant in today's environment. These include advanced models for new converter topologies, renewable resources and interfaces to the communication layers that control modern large power-systems. He has served in many IEEE/CIGRE working groups and journal editorial-boards. His work has been extremely impactful on the establishment of the industry standard for real-time power-system simulation.

# NEW INTERNATIONAL FELLOWS 2022

## Zdeněk P. Bažant, McCormick Institute Professor and W.P. Murphy Professor of Civil and Mechanical Engineering and Materials Science, Northwestern University

For discovery of energetic and statistical-energetic size effect laws for quasibrittle failures, for conceiving their crack-band and nonlocal modeling with Gauss-Weibull probability distribution of quasibrittle structure strength, for formulating fundamental physics-based laws of creep and hygrothermal effects in concrete with seconds-to-century time span, and for major advances in damage assessment of concrete structures enhancing infrastructure durability and sustainability. For collaborations in Canada since the 60s.

## Menachem Elimelech, Sterling Professor of Chemical and Environmental Engineering, Dept. of Chemical and Environmental Engineering, Yale University

Menachem Elimelech is the Sterling Professor of Chemical & Environmental Engineering at Yale University. He is a member of the US National Academy of Engineering and international fellow of the Australian Academy of Technology and Engineering. He is the recipient of numerous awards, including the prestigious Clarke Water Prize and Eni Award. He is recognized for his seminal contributions to the development of membrane processes for desalination and wastewater reuse and for educating the next generation of university professors and industry leaders in the fields of environmental and chemical engineering.

## Maohong Fan, Carrell Endowed Chair and SER Professor, University of Wyoming

As a member of NCC appointed by 3 US DOE Secretaries and Carbon Utilization Committee of US NASEM, Professor Fan is a pioneer in clean energy production and eco-environmental protection areas worldwide, including catalytic CO2 capture and conversion, renewable resources utilization, critical materials development. He has trained many undergraduate, graduate, postdoc, and professionals (including engineers and professors) for various countries, especially for Canada. He has been collaborating with companies in Canada in developing CO2 capture technologies while transferring several his technologies to Canada, which is important to Canada's future. His contributions to Canada are truly significant.

# NEW INTERNATIONAL FELLOWS 2022

## Dan M. Frangopol, The Fazlur R. Khan Endowed Chair of Structural Engineering and Architecture, Lehigh University

For the creation, development, and application of life-cycle engineering under uncertainty — a major contribution to the knowledge base with a significant impact on civil engineering design, teaching, and practice — and world leadership and service in promoting international cooperation in the fields of safety, risk, structural health monitoring, maintenance management optimization, and life-cycle performance and cost of structures and infrastructure systems to enhance the welfare of society.

## Tao Mei, Vice President, Deputy Managing Director of JD Explore Academy, JD.COM

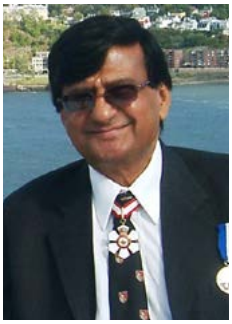
Dr. Tao Mei is a world-renowned technology leader in both scientific research and industrial engineering. A Fellow of IEEE and IAPR, and a Distinguished Scientist of ACM, Mei has made exemplary contributions to multimedia computing, computer vision, and their applications. As a Vice President of JD.COM and a former Senior Research Manager of Microsoft Research Asia, he holds over 60 patents and has shipped commercial products to tens of millions of users around the world through his ground-breaking technology innovations. Mei has been closely collaborating with Canadian scientific communities for the past decade.

## Pol D. Spanos, L.B.Ryon Endowed Chair in Engineering, Rice University

Pol Spanos has made outstanding contributions to analyses of dynamical systems/phenomena with emphasis on nonlinear behavior/risk assessment and in diverse engineering projects. Representative themes are: system health-monitoring; aseismic design of constructed facilities; fatigue life of materials; nano mechanics; Monte Carlo simulation of engineering / societal/ economic systems; signal processing for encephalograms; dynamic certification of aerospace payloads; and risk estimation in a plethora of environmental, societal, and technical problems. His leadership has proven fruitful through his: exemplary student mentorship; strong book and journal editorships/ publications; intense international conference organization; extensive global consulting; and rich collaboration with Canada. He has received numerous (national and international) coveted awards.

# HONORARY FELLOW 2022

## Ashok Vijh, Maitre-de-Recherche, Institut de Recherche de l'Hydro-Quebec (IREQ)



Dr. Ashok Vijh has held the title of Maitre-de-Recherche at Hydro Québec since 1973. He is winner of the Killam Prize in Engineering, a Life Fellow of the IEEE, Fellow of the Royal Society of Canada and former president of the RSC Academy of Science. He is an Officer of the Order of Canada, and of the Order of Québec. Dr. Vijh is also a Knight of the Order of Montreal. Dr. Vijh has advanced electrochemical technologies such as fuel cells, advanced batteries, hydrogen electrolyzers and photoelectochemical solar devices as well as for treatment of cancerous tumours. He has received over 60 distinctions, published over 400 refereed papers and eight books.