2023 MIT Sustainability Conference

Day 1 | Tuesday September 26, 2023

9:00 AM  Opening Remarks

9:05 AM  Keynote: The Impact of National Sustainability Policy on Industry

Tina Bahadori
Executive Director, Division of Engineering and Physical Sciences
The National Academies of Sciences, Engineering, and Medicine
Jeremy Gregory is the Executive Director of the MIT Climate and Sustainability Consortium. In this role he coordinates the activities of a diverse set of industry leaders who work closely with the MIT community to drive priorities and strategy around sustainability, climate change mitigation, and adaptation.

Jeremy brings extensive experience in working with industry partners and diverse stakeholders across the Institute. In his most recent role as Executive Director of the MIT Concrete Sustainability Hub, Jeremy worked directly with industry leaders; drew links between academia, industry, and government; helped define strategy; and coordinated research activities with external collaborators. Jeremy has also served as a Faculty Fellow within MIT’s Office of Sustainability since 2018. In this role, he has collaborated with administration, faculty, staff, and students across campus to conduct analyses to support decisions related to strategies for lowering MIT’s environmental footprint, and advised staff and research fellows. In addition, early in its development, he was the Education Coordinator for the MIT Portugal Program’s Engineering Design and Advanced Manufacturing Focus Area, where he built education and research activities between MIT, three Portuguese universities, and numerous Portuguese companies. Through the Materials Systems Lab, Jeremy also conducted climate and sustainability research aimed at quantifying the economic and environmental implications of engineering and system design decisions in the context of many products, industries, and partners.

The experience Jeremy brings to the MCSC will greatly benefit ongoing efforts to identify meaningful links and synergies between member companies and the MIT community, as well as among member companies themselves. As described in the recently-released Fast Forward: MIT’s Climate Action Plan for the Decade, “in fields from aerospace to artificial intelligence, personal devices to packaged foods, MCSC member companies are working with MIT researchers and each other to dramatically speed the creation, testing, and deployment of practical climate solutions within their production processes, supply chains, and service models.” Jeremy will continue to build upon his existing work with the Office of Sustainability so that the consortium can support the Institute’s commitment to achieve net-zero emissions by 2026, also stated in the Climate Action Plan. His background will also provide critical insight into how to best grow the activities surrounding the inaugural cohort of MCSC Impact Fellows, a group that will bridge education, industry, and research, as well as grow future action-oriented MCSC events and workshops.

Jeremy holds a Bachelor of Science (BS) in mechanical engineering from Montana State University, and a Master of Science (MS) and PhD in mechanical engineering from MIT. Please join us in congratulating Jeremy on this new role.

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Dava Newman
Director, MIT Media Lab

Jinhua Zhao
Edward and Joyce Linde MIT Associate Professor of City and Transportation
Founder and Faculty Director, MIT Mobility Initiative

Jinhua Zhao is the Edward and Joyce Linde Associate Professor of City and Transportation Planning at the Massachusetts Institute of Technology (MIT). He integrates behavioral and computational thinking to decarbonize the global mobility system. Prof. Zhao founded and directs the MIT Mobility Initiative, coalescing the Institute’s efforts on transportation research, education, entrepreneurship, and civic engagement. He hosts the MIT Mobility Forum.

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10:30 AM  Networking Break

10:50 AM  Sustainability at the Gas Pump: Technical and Personnel Lessons From a Fuel Infrastructure Company

Katie Rowen
SVP, Chief Legal & Sustainability Officer
Vontier Corporation
Catarina Madeira joined Corporate Relations in May 2021 as Program Director, Startup Exchange.

Madeira has been working with the Cambridge/Boston startup ecosystem for the past 10 years and joins Corporate Relations with a solid network in the innovation and entrepreneurial community. In 2010, she joined the startup accelerator IUL MIT Portugal working in Lisbon and working with the Cambridge team on all aspects related to the accelerator's launch. She held positions including Operations Coordinator, Program Manager, and Business Developer. The accelerator soon achieved steady growth in large part due to the partnerships that Catarina led with regional and global startup ecosystems. Most recently she worked at NECEC, leading a program that connects cleantech startups and industry. In this role, she developed and built a pipeline of startups and forged strong relationships with both domestic and European companies. She has also held positions in Portugal and France including at L’Oréal and Saboaria e Perfumaria Contiângua as Pharmacist and Technical Director.

Madeira earned her Bachelor in Chemistry at the University of Porto and her Bachelor in Pharmaceutical Sciences at the University of Coimbra in Portugal. She went on to earn her Master of Engineering for Health and Medicines at University Lyon 1 and EM Lyon in France.
Sustainable Materials and Architecture for the Built Environment
Leslie Norford
Professor, Building Technology
Associate Head, Department of Architecture
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Professor, Building Technology
Associate Head, Department of Architecture

Leslie Norford is Professor of Building Technology and Associate Head of the Department of Architecture at MIT. His research focuses on reducing building energy use and associated resource consumption and carbon emissions and his teaching includes project-based efforts to improve schools in developing countries and promote the use of simulation-enhanced building design workflows. He has developed fault detection and optimal control strategies for HVAC equipment and explored design options for low-energy space-conditioning systems based on the use of desiccants and membranes for latent cooling. Working with mechanical and electrical engineering colleagues and students at MIT, he has studied how control of HVAC systems can help electric utilities mitigate the impact of power fluctuations associated with wind and PV systems through provision of such services as power reserves and frequency regulation. Active internationally, he has conducted measurement campaigns and numerical analyses of building energy consumption in Russia, China, Pakistan, the UK and Norway. Recent work in India focused on indoor and ambient air quality, with emphasis on mitigating the impact of cooking and land-clearing fires in agricultural areas that surround cities. Over a decade of leading a research group in Singapore, under the auspices of the Singapore-MIT Alliance for Research and Technology and related work with colleagues in Abu Dhabi produced measurements and models of urban microclimates, with a focus on identifying strategies to improve human thermal comfort in outdoor urban areas.

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Panel: Sustainability, Strategy, and Innovation in the Water Industry

Sustainability Education for the Current and Future Corporate Workforce
Liz Potter-Nelson
Physics and Science Education
University of Maine
Sarah Meyers
Education Program Manager, MIT Environmental Solutions Initiative

Networking Break

Digital Sustainability: Design, Infrastructure, and Applications for the Massachusetts Green High Performance Computing Center
Chris Hill
Principal Research Engineer, Department of Earth, Atmospheric, and Planetary Sciences
4:20 PM

Scalable Energy Storage in Concrete – All Buildings A Battery
Franz-Josef Ulm
Faculty Director, Concrete Sustainability Hub
Professor, Construction Management, Civil and Environmental Engineering, MIT
Department of Civil and Environmental Engineering

Dr. Franz-Josef Ulm is a Professor of Civil & Environmental Engineering at the Massachusetts Institute of Technology. A structural Engineer by training, he is the faculty director of the Concrete Sustainability Hub at MIT, an academia-industry partnership between MIT and the North- American Cement and Ready Mix Concrete Industry to advance the industry’s 2050 carbon neutrality goals through sustainable development of resilient solutions from materials scale to infrastructure solutions. He is recognized as a leading expert worldwide in the nanoengineering of concrete and its implementation at the industry scale. He is an elected member of the US National Academy of Engineering, the European Academy of Science and Arts, and the Austrian Academy of Science; and Chief Editor of the Journal of Engineering Mechanics of the American Society of Civil Engineers.

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Admir Masic
Esther and Harold E. Edgerton Assistant Professor of Civil and Environmental Engineering, MIT Department of Civil and Environmental Engineering

Admir Masic is an Esther and Harold E. Edgerton Career Development Assistant Professor in the Department of Civil and Environmental Engineering (CEE) at the MIT. He is also an archaeological materials faculty fellow for the Department of Materials Science and Engineering (DMSE) at the Center for Materials Research in Archaeology and Ethnology (CMRAE) and founder of the MIT Refugee Action Hub (MIT ReACT). His research focuses on the development of high performance, in situ and multiscale characterization techniques to investigate complex biological and archaeological materials. His group explores ancient technologies as a source of inspiration for the development of a new generation of more durable and sustainable building materials. In 2019, Masic received the CEE Masheeh Excellence Teaching Award. From 2008-2015, Masic, was an independent group leader at the Max Planck Institute of Colloids and Interface in Potsdam, Germany. He completed his physical chemistry MS and PhD degrees at University of Turin.

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5:00 PM

Closing Remarks

Day 2 | Wednesday September 27, 2023

9:00 AM
Opening Remarks

9:05 AM
Keynote: Sustainability for National Defense
Ariel L. Furst
Paul M. Cook Career Development Professor
MIT Department of Chemical Engineering

Ariel L. Furst received a B.S. degree in Chemistry from the University of Chicago working with Prof. Stephen B. H. Kent on the chemical synthesis of proteins. She then completed her Ph.D. in the lab of Prof. Jacqueline K. Barton at the California Institute of Technology developing new cancer diagnostic strategies based on DNA charge transport. She was then an A. O. Beckman Postdoctoral Fellow in the lab of Prof. Matthew Francis at the University of California, Berkeley. She is now an assistant professor in the Chemical Engineering Department at MIT. She is passionate about STEM outreach and increasing participation of underrepresented groups in engineering.