2021 MIT Energy Initiative
Annual Research Conference Speaker Biographies

Joseph E. Aldy

Joseph E. Aldy is a professor of the Practice of Public Policy at the Harvard Kennedy School, a university fellow at Resources for the Future, a faculty research fellow at the National Bureau of Economic Research, and a senior adviser at the Center for Strategic and International Studies. His research focuses on climate change policy, energy policy, and regulatory policy. He also serves as the faculty chair of the Mossavar-Rahmani Center for Business and Government Regulatory Policy Program. In 2009-2010, he served as the special assistant to the President for Energy and Environment at the White House. Aldy previously served as a fellow at Resources for the Future, co-director of the Harvard Project on International Climate Agreements, co-director of the International Energy Workshop, and worked on the staff of the President's Council of Economic Advisers. He earned his doctorate in economics from Harvard University and MEM and bachelor's degrees from Duke University.

Saurabh Amin

Saurabh Amin is an associate professor in the Department of Civil and Environmental Engineering at the Massachusetts Institute of Technology. He is a PI in the Laboratory of Information and Decision Systems. He is also affiliated with the Operations Research Center, and the Center for Computational Science and Engineering at MIT. Since joining MIT in 2011, he has pursued research in the design of inspection and control algorithms for infrastructure systems. His work builds on foundations in control theory, game theory, and optimization in networks. His papers have addressed problems in resilient network control, information systems and incentive design, and optimal resource allocation in large-scale infrastructure systems. By focusing on the domains of highway transportation, electric power distribution, and urban water networks, he develops new theory and design tools for improving the performance of critical infrastructure systems in the face of disruptions, both stochastic and adversarial. He received his PhD in systems engineering from the University of California, Berkeley in 2011.

Anuradha Annaswamy

Anuradha Annaswamy is founder and director of the Active-Adaptive Control Laboratory in the Department of Mechanical Engineering at MIT. Her research interests span adaptive control theory and its applications to aerospace, automotive, propulsion, and energy systems, as well as cyber physical systems such as Smart Grids, Smart Cities, and Smart Infrastructures. She has received best paper awards (Axelby; CSM), as well as Distinguished Member and Distinguished Lecturer awards from the IEEE Control Systems Society (CSS) and a Presidential Young Investigator award from NSF. She is a fellow of IEEE and International Federation of Automatic Control. She is the recipient of the Distinguished Alumni award from Indian Institute of Science for 2021.

Annaswamy is the author of a graduate textbook on adaptive control, co-editor of two vision documents on smart grids, as well as two editions of the Impact of Control Technology report, and a member of the National Academy of Sciences Committee study that published a report on the Future of Electric Power in the United States in 2021. She served as the president of CSS in 2020. She has been serving as a faculty lead in the Electric Power Systems workstream in the MIT Future Energy Systems Center since September 2021.

Robert C. Armstrong

Robert C. Armstrong is MITEI's director and the Chevron Professor of Chemical Engineering. A member of the MIT faculty since 1973, Armstrong served as head of the department of chemical engineering from 1996 to 2007 and has directed MITEI since 2013, after serving as the organization's deputy director from 2007-2013 with founding director Ernest Moniz. His research is focused on pathways to a low-carbon energy future.

Armstrong has been elected into the American Academy of Arts and Sciences (2020) and the National Academy of Engineering (2008). He received the 2006 Bingham Medal from the Society of Rheology, which is devoted to the study of the science of deformation and flow of matter, and the Warren K. Lewis Award and the Professional Progress Award in 1992, both from the American Institute of Chemical Engineers (AIChE). He is also the 2020 recipient of the AICHe Founders Award, which recognizes outstanding contributions in the chemical engineering field.

Armstrong was a member of MIT's *Future of Natural Gas* and *Future of Solar Energy* study groups. He advised the teams that developed MITEI's most recent reports, *The Future of Nuclear Energy in a Carbon-Constrained World* (2018) and *Insights into Future Mobility* (2019), and is co-chairing the new MITEI study, *The Future of Storage*. He co-edited *Game Changers: Energy on the Move* with former U.S. Secretary of State George P. Shultz.

Paul Bogers

Paul Bogers was recently appointed as the VP for Hydrogen, looking after all aspects of Shell's growing hydrogen business. In this role, Bogers will oversee Shell's work in hydrogen as a fuel for transport and the growing business in industrial hydrogen.

Prior to taking this role, Bogers was Shell's VP for Fuel Technologies, leading a team of 200+ scientists and engineers looking after all fuels development, including actively shaping future fuels and alternatives.

Previous assignments in Shell included a range of commercial, technical, and strategy roles in Shell's aviation business and overseeing differentiated fuels and lubricants product development in the U.K. and U.S. leading to a world's first commercial flights on GTL Jet fuel as well as spearheading development of Pennzoil Pureplus–the first Motoroil born from Natural Gas.

Bogers holds an MSc in aerospace engineering from Delft University of Technology in The Netherlands, and a post-graduate degree in fluid dynamics from the Von Karman Institute in Brussels.

Audun Botterud

Audun Botterud is a principal research scientist in Laboratory for Information and Decision Systems (LIDS) at Massachusetts Institute of Technology (MIT), with a co-appointment in the Energy Systems Division at Argonne National Laboratory (ANL). His research interests include power systems, electricity markets, energy economics, renewable energy, and energy storage. Botterud holds a MSc (Industrial Engineering) and a PhD (Electrical Power Engineering), both from the Norwegian University of Science and Technology. He was previously with SINTEF Energy Research in Trondheim, Norway.

Martha Broad

Martha Broad is MITEI's executive director. As part of the leadership team, she works to link science, innovation, and policy to transform the world's energy systems. She has a track record of successfully partnering with business, government, and non-profit stakeholders to support the clean energy transition. At MITEI, she works closely with member companies who collaborate with MIT researchers on a spectrum of topics, including the Low-Carbon Energy Centers.

In addition, she spearheads MITEI's collaboration with the U.S. Department of Energy to design, manage, and host the annual Clean Energy Education and Empowerment (C3E) Women in Clean Energy Symposium and serves as a C3E Ambassador.

Previously, as part of the senior management team of the Massachusetts Clean Energy Center (MassCEC), Broad led programs and studies that focused on the commercialization of clean energy technologies. By collaborating with universities and public and private partners, she helped facilitate the state's successful installation of hundreds of megawatts of wind and solar systems.

Laura Cozzi

Laura Cozzi was appointed the International Energy Agency's chief energy modeller in 2018. As chief energy modeler, Cozzi oversees the Agency's work on outlooks and forecasts. Cozzi is part of the senior management team of the IEA. She is also head of the Demand Outlook Division with responsibility of producing the annual World Energy Outlook, the IEA flagship publication, and the Global Energy Review among others. Cozzi joined the IEA in 1999, and has been leading several editions of the Outlook, and has been co-author of multiple editions of the report. Prior to joining the IEA, Cozzi worked for the Italian energy company ENI S.p.A. She holds a master's degree in environmental engineering (from Polytechnic Milan) and a master's degree in energy and environmental economics (from Eni Corporate University).

David Dankworth

David Dankworth is a distinguished scientific advisor at ExxonMobil Strategic Corporate Research. His work is currently focused on strategies for long term development and deployment of natural gas conversion technologies.

In his management career, Dankworth has led a range of global technology groups within ExxonMobil, including heat transfer, combustion, energy conservation, catalytic cracking, and hydroprocessing. He also has played roles in operations as technical manager of the Ingolstadt refinery in Germany, and managed regional engineering support for refining in both Europe and Canada. He was manager of the global Refining Process Engineering division from 2009-2013, which supported research, operations, project development and commercialization of process technology for ExxonMobil refineries and licensing customers worldwide. Most recently, he was head of Strategy for EM research & Engineering Co., working at the interface between technology development and business strategies.

Dankworth is a chemical engineer, with degrees from Rice University (BS 1986) University of Cambridge (CPGS 87, Churchill Scholar) and Princeton (PhD 91, Hertz Fellow). He is the inventor

on over 20 U.S. and international patents. Dankworth's continuing interests are in the areas of chemical reactor engineering, process intensification, global energy supply, corporate and industry strategy, and technical organization effectiveness.

Agustín Delgado

Agustín Delgado (Spain, 1972) holds an MSC in industrial engineering from the Escuela Superior Industrial (ICAI) of Universidad Pontificia de Comillas in Madrid and a PhD in industrial engineering from the Universidad Nacional de Educación a Distancia (UNED). He has also completed the School of Management Programme designed specifically for Iberdrola by IESE and the Global Leadership Programme at IMD.

A professional with twenty years of experience, he began his career in different companies from the rail and energy sectors. He joined Iberdrola in 2006 as innovation director. In 2010 he was appointed chief innovation and sustainability officer for the Iberdrola Group. He is also responsible for the venture capital program in IBERDROLA (PERSEO), where he coordinates PERSEO´s investment in technology companies related to new sustainable energies and business models.

Delgado is a former member of the Gamesa board of directors and some other startup companies. He is also member of the World Economic Forum, Global Future Council for Advanced Energy Technologies. He is a member of the advisory board in NEOTEC (Spanish Investment Programme in Risk Capital) and the Low-Carbon Energy Center for Electric Power Systems at MIT (Massachusetts Institute of Technology).

Melissa DeValles

Melissa DeValles is the North American Director of Commercialization for Malta, Inc., a provider of grid-scale, long duration storage solutions. With the ability to store energy for 10 to 20-hours, days or weeks at a time at the utility scale, Malta brings forward a technology to enable increased renewable penetration while maintaining reliable, safe operation of the grid. DeValles joins Malta with 20 years of experience within the energy industry, a majority of that time developing and acquiring assets across a range of North American markets and asset types including hydropower, biomass, combined heat, and power and thermal assets. DeValles has worked primarily in project and business development roles in the private sector and has also worked in the regulated utility environment. DeValles' background originates in operational engineering in the maritime sector, before transitioning to the energy sector.

Kerry Emanuel

Kerry Emanuel is the Cecil and Ida Green professor of atmospheric science at the Massachusetts Institute of Technology, where he has been on the faculty since 1981, after spending three years on the faculty of UCLA.

Emanuel's initial focus was on the dynamics of rain and snow banding in winter storms, but his interests gradually migrated to the meteorology of the tropics and to climate change. His specialty is hurricane physics and he was the first to investigate how long-term climate change might affect hurricane activity, an issue that continues to occupy him today. His interests also include cumulus convection, and advanced methods of sampling the atmosphere in aid of numerical weather prediction.

Emanuel is the author or co-author of over 200 peer-reviewed scientific papers, and three books, including *Divine Wind: The History and Science of Hurricanes*, published by Oxford University Press and aimed at a general audience, and *What We Know about Climate Change*, published by the MIT Press and now entering its third edition. He is a co-director of MIT's Lorenz Center, a climate think tank devoted to basic, curiosity-driven climate research.

Seiji Engelkemier

Seiji Engelkemier is a graduate student in MIT's Department of Mechanical Engineering. He is an author of MITEI's upcoming Future of Storage report, where he focuses on thermal and compressed air energy storage technologies. Engelkemier's current research is on methane pyrolysis to produce low carbon hydrogen. His research interests include the development of energy storage and carbon-free energy technologies with previous work on sustainable materials and cooling. He is a 2021-2022 MITEI energy fellow and holds a BS in mechanical engineering from MIT.

Charles Forsberg

Charles Forsberg is a principal research scientist at MIT. His current research areas include Fluoride-salt-cooled High-Temperature Reactors (FHRs), hybrid energy systems, and utility-scale 100-GWh heat storage systems. He is the PI for building a flowing molten salt loop in the MIT reactor. He teaches the fuel cycle and energy systems classes. Before joining MIT, he was a corporate fellow at Oak Ridge National Laboratory. Earlier he worked for Bechtel Corporation and Exxon.

He is a fellow of the American Nuclear Society (ANS), a fellow of the American Association for the Advancement of Science, and recipient of the 2005 Robert E. Wilson Award from the American Institute of Chemical Engineers for outstanding chemical engineering contributions to nuclear energy, including his work in waste management, hydrogen production, and nuclear-renewable energy futures. He received the American Nuclear Society special award for innovative nuclear reactor design and is a director of the ANS. Forsberg earned his bachelor's degree in chemical engineering from the University of Minnesota and his doctorate in nuclear engineering from MIT. He has been awarded 12 patents and published over 300 papers.

Ariel Furst

Ariel L. Furst is the Raymond (1921) & Helen St. Laurent Career Development Professor of Chemical Engineering at MIT. She received a BS degree in chemistry from the University of Chicago. She then completed her PhD in the lab of Professor Jacqueline K. Barton at the California Institute of Technology developing new cancer diagnostic strategies based on DNA charge transport. She was an A. O. Beckman Postdoctoral Fellow in the lab of Professor Matthew Francis at UC, Berkeley developing sensors to monitor environmental pollutants. Currently, her lab combines biological, chemical, and materials engineering to solve challenges in human health and environmental sustainability. She is passionate about STEM outreach and increasing participation of underrepresented groups in engineering.

Betar Gallant
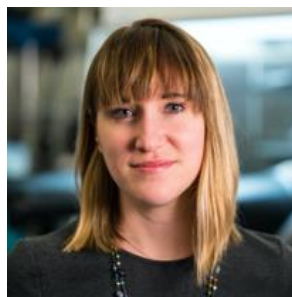
Betar Gallant is an associate professor and the American Bureau of Shipping Career Development Professor in Mechanical Engineering at MIT. Gallant completed her SB ('08), SM ('10) and PhD ('13) degrees in the same department. After graduating, Gallant was a Kavli Nanoscience Institute Prize Postdoctoral Fellow at Caltech in the Division of Chemistry and Chemical Engineering. As a faculty member at MIT, Gallant leads the Energy and Gas Conversion Laboratory, which is developing insights into reaction mechanisms that underpin advanced energy conversion and greenhouse gas mitigation technologies, with a particular emphasis on integration of electrochemistry with CO_2 capture and storage. Her group has pioneered the scientific framework behind use of amine capture sorbents in electrochemical environments subject to direct reductive conversion, driving CO_2 to products or storage phases, which has potential to contribute to alternatives of today's energy-intensive thermal regeneration processes. Her work with ABS centers on modeling of amine-based, and future, technologies for onboard CO_2 capture on ships. She served recently as a member of the Academic Steering Committee for the MA State 80x50 Plan for greenhouse gas reduction by 2050 and is a faculty lead in the MIT Future Energy Systems Center focus area of CCS.

Gallant is the recipient of multiple awards including an MIT Bose Fellow, Army Research Office Young Investigator Award, Scialog Fellow in Energy Storage and in Negative Emissions Science, NSF CAREER Award, the Ruth and Joel Spira Award for Distinguished Teaching at MIT, and the Electrochemical Society Battery Division Early Career award.

William H. Green

William H. Green is a world leader in chemical reaction engineering, and he has led many research projects related to fuels, combustion, and pyrolysis. He is well known for developing computer methods to predict the behavior of complicated reacting mixtures. He also invents numerical methods, including methods for machine learning in chemistry. He also invents and analyzes technologies to reduce greenhouse gas emissions; two of his patents are now being commercialized. He earned his BA from Swarthmore College in 1983, and his PhD from UC Berkeley in 1988. After postdocs at Cambridge and Penn, he worked for Exxon for six years before joining the Chemical Engineering faculty at MIT in 1997. He has written or co-authored more than 300 journal articles, which have been cited more than 16,000 times. He is a fellow of the AAAS and of the Combustion Institute, and has received the ACS Glenn Award in Fuel Chemistry and AIChE's Wilhelm Award in Reaction Engineering. He is the co-director of MIT's Mobility Systems Center. He previously served as the editor of the *International Journal of Chemical Kinetics*, as the faculty chair of MIT's Mobility of the Future project, and as the executive officer of the MIT Department of Chemical Engineering.

Howard Gruenspecht

Howard Gruenspecht is a senior energy economist at the MIT Energy Initiative where he focuses on energy storage. Before joining MIT, he was deputy administrator of the U.S. Energy Information Administration (2003-17) where he supervised all data and analysis products. Gruenspecht has also held leadership roles in the DOE Policy Office (1991-2000) and senior staff positions at the Council of Economic Advisers (1977-78 and 1989-91), the White House Domestic Policy Staff (1978-79), and the U.S. International Trade Commission (1988-89). In academia, he was a faculty member at Carnegie Mellon (1981-88) and a resident scholar at Resources for the Future (2000-03).

Howard J. Herzog

Howard J. Herzog is a senior research engineer at the MIT Energy Initiative (MITEI) and executive director of MITEI's Carbon Capture, Utilization, and Storage Low-Carbon Energy Center. He received his undergraduate and graduate education in chemical engineering at MIT. He has industrial experience with Eastman Kodak, Stone & Webster, Aspen Technology, and Spectra Physics. Since 1989, he has been on the MIT research staff, where he works on sponsored research involving energy and the environment, with an emphasis on greenhouse gas mitigation technologies. He was a coordinating lead author for the IPCC Special Report on Carbon Dioxide Capture and Storage (released September, 2005) and a U.S. delegate to the Carbon Sequestration Leadership Forum's Technical Group (June 2003-September 2007). He was awarded the 2010 Greenman Award by the IEAGHG "in recognition of contributions made to the development of greenhouse gas control technologies." In 2018, he authored a book entitled *Carbon Capture* for the MIT Press Essential Knowledge Series.

Patrizia Ingallina

Patrizia Ingallina is now the industrial technology director for Eni Next LLC. During her extended history of working at Eni S.p.A. and its affiliates, she held a variety of positions. She previously worked as vice president of Non-Operated Assets Business Management, being responsible for maximizing the value of the assets through proposal of initiatives and monitoring of the performance. She also held the role of vice president of Intellectual Property Management, with responsibility for the management of the entire patent portfolio of Eni S.p.A., and effectively contributing to the valorization of Eni's proprietary technologies. Highly skilled in technology innovation, she achieved a broad experience in performing and managing R&D projects for the Refinery and Petrochemical Industry. She authored 13 patents and about 20 scientific papers published on international peered journal.

She holds a degree in chemistry from State University of Milano (Italy) with a thesis in homogeneous catalysis and graduated from the program for Industrial Property Management held at the School of Management of Politecnico di Milano (Italy).

Paul Joskow
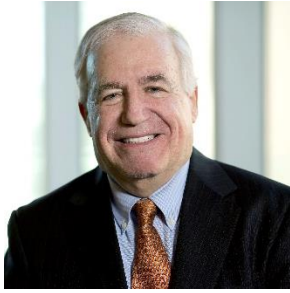
Paul Joskow is the Elizabeth and James Killian Professor of Economics at the Massachusetts Institute of Technology. Joskow has been with MIT since 1972, where he was the head of the MIT Department of Economics from 1994 to 1998 and director of the MIT Center for Energy and Environmental Policy Research from 1999 to 2007. His teaching and research areas include industrial organization, energy and environmental economics, competition policy, and government regulation of industry. He is a past-president of the International Society for New Institutional Economics, a distinguished fellow of the Industrial Organization Society, a distinguished fellow of the American Economic Association, a fellow of the Econometric Society, a fellow of the American Academy of Arts and Sciences, a fellow of the Econometric Society, and a member of the Council on Foreign Relations. He has served on the boards of the New England Electric System, National Grid PLC, TC Energy, State Farm Indemnity, Exelon Corporation (current), and Putnam Mutual Funds (current).

Shaharyar Khan
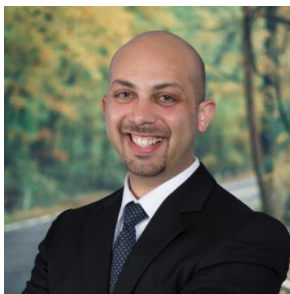
Shaharyar Khan is a research scientist at the MIT Sloan School of Management. He received his SM (2019) in engineering and management from the Massachusetts Institute of Technology. He received his BASc Hons (2010) in mechanical engineering from the University of Waterloo. He has worked as a senior seismic/structural design engineer for BWX Technologies, designing and analyzing critical components for nuclear power plants. He has also worked as a lead site project engineer at a nuclear power plant, deploying tools for reactor inspections and maintenance. He is a registered professional engineer in Ontario, Canada.

Christopher Knittel

Christopher Knittel is the George P. Shultz Professor of Energy Economics in the Sloan School of Management MIT. He is also the director of MIT's Center for Energy and Environmental Policy Research, which has served as the hub for social science research on energy and the environmental since the late 1970s. Knittel is also the deputy director for policy at MITEI and a co-director of The E2e Project, a research initiative between MIT, UC Berkeley, and the University of Chicago, to undertake rigorous evaluation of energy efficiency investments. He joined the faculty at MIT in 2011, having taught previously at UC Davis and Boston University. At MIT, he teaches Energy Economics and Policy to undergraduates, MBA students, and graduate students from outside of the Sloan School of Management.

Dharik S. Mallapragada

Dharik S. Mallapragada is a research scientist at the MIT Energy Initiative (MITEI), where his research focuses on developing advanced decision-support tools for planning and operating resilient, low-carbon energy systems as well as design and integration of novel energy technologies. He is the lead systems modeler on the MITEI *Future of Storage Study*, a multi-disciplinary project exploring the role of energy storage technologies in future low-carbon electric grids. Prior to MIT, Mallapragada spent nearly five years in the energy and petrochemicals industry working on a range of sustainability-focused research topics, including conversion of biomass to fuels and chemicals, low-carbon hydrogen production and developing optimization based tools for energy infrastructure planning, as well as process and product design. Most recently, Mallapragada worked at ExxonMobil Corporate Strategic Research, where he contributed to research on power systems modeling, technology life cycle assessment and also led a research program to study energy challenges in developing countries. To date, he has published 28 peer-reviewed publications across a spectrum of journals, including the *Proceedings of National Academy of Sciences*, *Nature Energy*, *Energy & Environmental Science*, *Applied Energy*, *Climatic Change*, and *Environmental Research Letters*. Mallapragada's research contributions also include development of open-source software, GenX, to support planning for low-carbon electricity systems with flexible representations of emerging technologies. Mallapragada holds a MS and PhD in chemical engineering from Purdue University and a BTech in chemical engineering from the Indian Institute of Technology, Madras, India.

Karen Palmer

Karen Palmer is an expert on the economics of environmental, climate and public utility regulation of the electric power sector. Her research and policy work explores climate policy design, efficient ways to promote renewable and other clean sources of electricity. She also investigates new market designs, new approaches to electricity pricing and regulatory reforms to pave the way for long-term de-carbonization of electricity supply and electrification of the energy economy.

In the 1990s, Palmer spent six months as a visiting economist in the Office of Economic Policy at the Federal Energy Regulatory Commission where she worked on wholesale market design in the nascent ISO markets. She has served on three National Academies study panels, including one on the future of electricity from renewables and one on the future of electric power in the U.S. She is president of the Association of Environmental and Resource Economists (AERE) and serves on the Environmental Advisory Council to the New York ISO and on the Future Power Market Forum Advisory Group. She is the recipient of the Public Utility Research Center's 2015 Distinguished Service Award and was elected as an AERE Fellow in 2018. Her published papers

have appeared in many academic journals including the *American Economic Review*, the *RAND Journal of Economics, The Review of Environmental Economics and Policy,* and *The Journal of Environmental Economics and Management.*

John Parsons

John Parsons is senior lecturer at the Sloan School of Management. His research focuses on the valuation and financing of investments in energy markets, as well as the problems of risk in energy and environment markets, the role of trading operations in energy companies. He is currently an associate director at MIT's Center for Energy and Environmental Policy Research (CEEPR). He was a co-director of the recent MIT study on the *Future of Nuclear Energy in a Carbon Constrained World*. Parsons serves as an associate member of the U.S. CFTC's Energy and Environmental Markets Advisory Committee. Parsons has been a visiting scholar at the U.S. Federal Energy Regulatory Commission. He holds a BA in economics from Princeton University and a PhD in economics from Northwestern University.

Jatin Patil

Jatin Patil is a fouth year PhD candidate at the Department of Materials Science of Engineering, and completed his BASc in nanotechnology engineering from the University of Waterloo in 2018. He is currently supported by the Natural Sciences and Engineering Council of Canada (NSERC) Postgraduate Fellowship and the John Hennessy Fellowship through MIT's Office of Graduate Education.

Patil is currently advised by Professor Jeffrey Grossman, where he works broadly on materials engineering for clean energy applications. His current projects are focused on (1) improving the stability of metal-nanowire transparent electrodes through vapor-deposited encapsulants, and (2) natural carbon-based membranes for electrochemical applications such as water treatment and CO_2 capture. He has co-authored 9 publications and holds 2 patents from his undergraduate and graduate work.

Christoph Reinhart

Christoph Reinhart is a building scientist and architectural educator working in the field of sustainable building design and environmental modeling. At MIT, he is the director of the Building Technology Program and head of the Sustainable Design Lab (SDL), an inter-disciplinary group with a grounding in architecture that develops design workflows, planning tools, and metrics to evaluate the environmental performance of buildings and neighborhoods. He is also a member of Solemma, a technology company and Harvard University spinoff as well as strategic development advisor for mapdwell Palmetto, a solar mapping company and MIT spinoff. Products originating from SDL and Solemma—such as ClimateStudio, UMI, and mapdwell – are used in practice and education in over 90 countries.

Angeliki Diane Rigos

Angeliki Diane Rigos is the associate director for Graduate Programs at MIT Energy Initiative and program manager for the DOE funded Center for Enhanced Nanofluidic Transport at MIT.

Rigos began her career as a principal scientist at Physical Sciences Inc. where she worked on defense and energy contracts. She transitioned to an academic position as associate professor of Chemistry and Biochemistry at Merrimack College where she taught courses in chemistry, women in science and sustainable energy at the undergraduate level and science and energy policy at the graduate level. Her areas of research have included corrosion studies of supercritical water oxidation reactors used to destroy military toxic waste, Brownian dynamics simulations of order-disorder transitions in sheared colloidal suspensions, and modeling of diffusion-controlled reactions and conformational interconversion in protein crystals. For twelve years, she also worked as an energy consultant at Levitan & Associates, Inc. with a focus on power price forecasting, LNG, fuel cells, and renewable technologies including onshore / offshore wind and solar photovoltaics. In 2017, she gave up her tenured position to become the executive director of the MIT Tata Center for Technology and Design.

Rigos has volunteered in startup accelerators, as an industry mentor in Cleantech Open and an industry champion at MassChallenge. She is currently the president of the Massachusetts Chapter of the Association for Women in Science (AWIS) and has developed and launched a series of leadership workshops for AWIS members.

Rigos received a BA in chemistry from Cornell University, a PhD in physical chemistry from the Massachusetts Institute of Technology, an MBA from Northeastern University and is an alumna of HERS Denver 2015.

Yuriy Román

Yuriy Román is from Mexico City, Mexico. He obtained his B. degree in chemical engineering at the University of Pennsylvania in 2002. He completed his PhD at the University of Wisconsin-Madison, also in chemical engineering, under the guidance of Professor James Dumesic in 2008 working on catalytic strategies to convert biomass-derived carbohydrates into platform chemicals. He then completed a two-year postdoc at Caltech, working with Professor Mark E. Davis on the synthesis of Lewis acidic zeolites and mesoporous materials. Román joined the Department of Chemical Engineering at MIT in 2010 and was then promoted to associate professor in 2014 and full professor in 2020. He currently holds the Robert T. Haslam (1911) Chair of Chemical Engineering. His research lies at the interface of heterogeneous catalysis and materials design where a wide range of synthetic, spectroscopic, and reaction engineering tools are applied to study the chemical transformation of molecules on catalytic interfaces. He has received the NSF CAREER, Robert Augustine, AICHE CRE Division Young Investigator, and ACS Early Career in Catalysis awards.

Nigel Steward

Nigel Steward is the chief scientist of Rio Tinto – leading the company's global Technology and R&D program working closely with the Rio Tinto's Product Groups and Functions worldwide. He holds a BSc (eng) and PhD in metallurgy and materials science from Imperial College, London, UK and is an associate of the Royal School of Mines. He holds an MBA from Queen's University, Canada. Steward has worked for Rio Tinto for 33 years in the aluminum, copper & diamonds divisions of Rio Tinto holding various operational and functional positions across the company in R&D, Environment and Technical Management, Regional Industrial Development, Technology Sales, Operational Excellence, and Climate Change worldwide, and in his previous roles he was the managing director of Copper & Diamonds Operations, head of Group Technical – Processing for Rio Tinto, and SVP of Technology and Supply Chain in the Aluminum Product Group.

Robert Stoner

Robert Stoner is the deputy director for science and technology at MITEI, founding director of the MIT Tata Center for Technology and Design, and faculty co-director of the MITEI Low-Carbon Energy Center for Electric Power Systems. He is currently a member of the MIT Energy Council, the Science and Technology Committee of the U.S. National Renewable Energy Laboratory (NREL), and the Technical Advisory Board of the Center for the Study of Science, Technology, and Energy Policy.

He is also a member of the Rockefeller Foundation-funded Global Commission to End Energy Poverty and serves as its secretary.

Stoner is the inventor of numerous computational and ultrafast optical measurement techniques, and has built and managed successful technology firms in the semiconductor, IT, and optics industries. From 2007 through 2009, he lived and worked in Africa and India while serving in a variety of senior roles within the Clinton Foundation, including as the CEO of the Clinton Development Initiative, and director of the Clinton Climate Initiative for Africa. His present research at MIT focuses on energy storage technology and policy, and the design and optimization of energy systems and business models in the developing world. He earned his Bachelor's degree in engineering physics from Queen's University and PhD from Brown University in condensed matter physics.

Brian Storey

Brian Storey is the senior director of the Energy and Materials division at Toyota Research Institute. The goal of this division is to accelerate the path to carbon neutrality by innovating in the research, manufacturing and adoption of emission-free vehicles.

Prior to Toyota, Storey was a professor of mechanical engineering at Olin College. He joined the faculty at Olin in 2000 and was one of the founding faculty members for this undergraduate, engineering focused college. Storey received his PhD from the University of California at Berkeley, MS from University of Illinois, and BS from the University of Texas at Austin - all in mechanical engineering.

Andy Sun
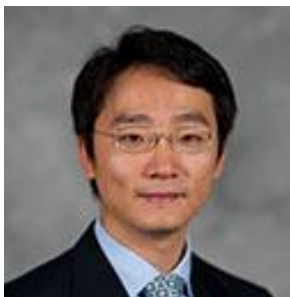
Andy Sun is currently the David McKenney Family Associate Professor in the H. Milton Stewart School of Industrial and Systems Engineering at Georgia Tech.

Sun's research focuses on building optimal decision-making tools for renewable energy integration, secure operation of large-scale power systems, distributed control of smart grid, and most recently electrification of public transport systems and electric vehicle battery reuse and recycling supply chain. Through extensive collaboration with the power industry, Sun's work on robust operations of renewable generation has been implemented in the daily electricity market in the U.S. and other parts of the world. Sun received SM and PhD degrees from MIT. Prior to joining Georgia Tech, he was a postdoctoral fellow at the IBM Thomas J. Watson Research Center in New York.

Sun will join MIT as the inaugural Iberdrola-Avangrid Associate Professor in the Sloan School of Management and as a faculty lead in the Energy Initiative in January 2022. He will continue to

focus on developing optimization models and algorithms for the decarbonization of energy systems.

Yogesh Surendranath

Yogesh (Yogi) Surendranath is an associate professor of Chemistry at MIT. He holds dual bachelor's degrees in chemistry and physics from the University of Virginia and a PhD in inorganic chemistry from MIT obtained under the direction of Professor Daniel Nocera. As part of his graduate work, he investigated the mechanism oxygen evolution catalysis by oxidic cobalt-based materials. After receiving his PhD, Surendranath undertook postdoctoral studies as a Miller Research Fellow at UC Berkeley under the direction of Professor Paul Alivisatos. In the summer of 2013, he assumed his current position at MIT. His research group aims to store renewable electricity in energy-dense chemical bonds by controlling interfacial reactivity at the molecular level. Surendranath has authored over 50 publications and is the recipient of numerous awards including the Presidential Early Career Award for Scientists and Engineer, E. Bright Wilson Prize, NSF CAREER award, a DOE Young Investigator Award, an Air Force Young Investigator Award, a Toyota Young Investigator Award from The Electrochemical Society, an Alfred P. Sloan Foundation Fellowship, and the Cottrell Scholar Award.

Evelyn Wang

Evelyn N. Wang is the Ford Professor of Engineering and Department Head in the Department of Mechanical Engineering at MIT. She received her BS from MIT, and MS and PhD from Stanford University in mechanical engineering. From 2006-2007, she was a postdoctoral researcher at Bell Laboratories. Her research interests include fundamental studies of micro/nanoscale heat and mass transport and the development of efficient thermal management, solar thermal energy conversion, thermal storage, and water harvesting systems. Her work has been honored with awards including 2008 DARPA Young Faculty Award, the 2011 Air Force Office of Scientific Research Young Investigator Award, the 2012 Office of Naval Research Young Investigator Award, the 2012 ASME Bergles-Rohsenow Young Investigator Award, the 2016 ASME EPPD Women Engineer Award, the 2017 ASME Gustus L. Larson Award, and the 2020 ASME ICNMM Prominent Researcher Award. She was recognized as one of Foreign Policy's Global Re-Thinkers in 2017. She is an ASME Fellow.

Anne E. White

Anne E. White is professor and head of Nuclear Science and Engineering at MIT and the MIT School of Engineering Distinguished Professor of Engineering. At MIT, White performs fusion energy research at the Plasma Science and Fusion Center in diagnostic development, turbulence and transport, and model validation at tokamaks around the world. She is currently co-leading the Nuclear at MIT as part of the Institute's new Climate Action Plan. White is active in the fusion community, is a member of APS and ANS, and has served on the executive committees and program committees of the APS-DPP, Sherwood Fusion Theory (former chair), US BPO, and US-EU TTF. She has won numerous awards for her research, teaching and service to MIT and to the fusion community and is an APS Fellow.

Dennis G. Whyte

Dennis G. Whyte is the Hitachi America Professor of Engineering and director of the Plasma Science and Fusion Center at the Massachusetts Institute of Technology. A recognized leader in fusion research, especially in the magnetic confinement of plasmas, Whyte has paved an innovative and faster path to producing fusion energy. He leads the fusion project, SPARC—a compact, high-field, net fusion energy fusion device—in collaboration with private fusion startup Commonwealth Fusion Systems (CFS). The core of the SPARC project was formed over eight years ago during a design course led by Whyte to challenge assumptions in fusion. Many of the ideas underpinning the high-field approach—including the use of HTS for high-field, demountable magnets, liquid blankets, and ARC (a fusion power plant concept)—have been conceived of or significantly advanced in his design courses. Whyte has over 300 publications, is a fellow of the American Physical Society, and has served on panels for the National Academies, the United States government, and the Royal Society. In 2018 Whyte received The Fusion Power Associates (FPA) Board of Directors Leadership Award, which is given annually to individuals who have shown outstanding leadership qualities in accelerating the development of fusion. Whyte earned a BS from the University of Saskatchewan, and an MS and PhD from Université du Québec.

Bilge Yildiz

Bilge Yildiz is the Breene M. Kerr (1951) Professor in the Nuclear Science and Engineering and the Materials Science and Engineering Departments at MIT, where she leads the Laboratory for Electrochemical Interfaces. She received her PhD at MIT in 2003 and her BSc from Hacettepe University in 1999. After working at Argonne National Laboratory as a research scientist, she returned to MIT as an assistant professor in 2007. Yildiz's research focuses on laying the scientific groundwork to enable next generation electrochemical devices for energy, fuels and chemicals conversion and information processing. The scientific insights derived from her research guide the design of novel materials and interfaces for efficient and durable solid oxide fuel cells, electrolytic water splitting, brain-inspired computing, and solid-state batteries. Her laboratory has made significant contributions in advancing the molecular-level understanding of oxygen reduction, water splitting, ion diffusion, and charge transfer on mixed ionic-electronic conducting oxides in these applications. Her approach combines computational and experimental analyses of electronic structure, defect mobility and composition, using *in situ* scanning tunneling and X-ray spectroscopy together with first-principles calculations and novel atomistic simulations. Her teaching and research efforts have been recognized by the Argonne Pace Setter (2016), ANS Outstanding Teaching (2008), NSF CAREER (2011), IU-MRS Somiya (2012), the ECS Charles Tobias Young Investigator (2012), the ACerS Ross Coffin Purdy (2018) and the LG Chem Global Innovation Contest (2020) awards, and the American Physical Society fellowship (2021).