MIT Industrial Liaison Program Faculty Knowledgebase Report

Low-Carbon Fuels

January 14, 2021 10:00 am - 12:00 pm

10:00am - 10:05am	Opening Remarks CJ (Changjie) Guo Program Director, MIT Corporate Relations CJ (Changjie) Guo Program Director, MIT Corporate Relations Dr. CJ Guo joined the Office of Corporate Relations as a Senior Industrial Liaison Officer in July, 2015. CJ comes to OCR with 25 years of extensive global experience in technology innovations, portfolio management and business development in emerging and conventional energy sectors with leading multinational corporations in the US, China and Canada. CJ is a leading expert in emerging energy technologies and energy system transitions. With Shell, he was the Emerging Technology Theme Leader in China/Beijing (2011 to 2015), worked extensively with the Chinese energy communities on the country's future energy landscape, and the Senior Technology Advisor in alternative transportation fuels in the US / Houston (2006-2010), and served during 2010 as Chairman of the Fuel Operations Group for the US DOE FreedomCar Partnership. Prior to joining Shell, CJ has held technology development, commercialization and management positions with Air Liquide (2002-2006) and The BOC Group (1995-2001) after working as a research scientist in oil-sands upgrading with CANMET in Canada (1992-1994). CJ earned his Ph.D., Chemical Engineering, at CSU, Ohio, his M.S. and B.S., Chemical Engineering at TYUT, China. He has earned various awards from Shell, Air Liquide, BOC, Shanxi Province (China). He holds many patents and has sat on the board of Shenzhen Sanmu Battery Technology Company as an independent board member during 2009-2010.

10:05am - 10:15am

Introduction and Framing
Robert Armstrong
Director, MIT Energy Initiative (MITEI)
Chevron Professor of Chemical Engineering
MIT Department of Chemical Engineering

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Professor Robert C. Armstrong directs the MIT Energy Initiative, an Institute-wide effort at MIT linking science, technology, and policy to transform the world's energy systems. A member of the MIT faculty since 1973, Armstrong served as head of the Department of Chemical Engineering from 1996 to 2007. His research interests include polymer fluid mechanics, rheology of complex materials, and energy.

Armstrong has been elected into the American Academy of Arts and Sciences (2020) and the National Academy of Engineering (2008). He received the Founders Award for Outstanding Contributions to the Field of Chemical Engineering (2020), Warren K. Lewis Award (2006), and the Professional Progress Award (1992), all from the American Institute of Chemical Engineers. He also 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,

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.

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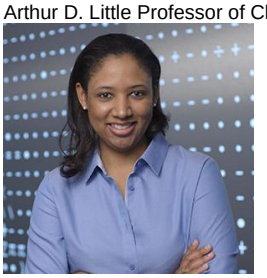
10:15am - 12:00pm

Experts Panel Discussion
Kristala L Jones Prather
Arthur D. Little Professor of Chemical Engineering, Department Executive Officer



Kristala L Jones Prather
Arthur D. Little Professor of Chemical Engineering, Department Executive Officer

Kristala Jones Prather is the Arthur D. Little Professor of Chemical Engineering at MIT. She received an S.B. degree from MIT in 1994 and Ph.D. from the University of California, Berkeley (1999), and worked 4 years in BioProcess Research and Development at the Merck Research Labs prior to joining the faculty of MIT.

Her research interests are centered on the design and assembly of recombinant microorganisms for the production of small molecules, with additional efforts in novel bioprocess design approaches. Prather is the recipient of an Office of Naval Research Young Investigator Award (2005), a Technology Review “TR35” Young Innovator Award (2007), a National Science Foundation CAREER Award (2010), the Biochemical Engineering Journal Young Investigator Award (2011), and the Charles Thom Award of the Society for Industrial Microbiology and Biotechnology (2017).

Additional honors include selection as the Van Ness Lecturer at Rensselaer Polytechnic Institute (2012), and as a Fellow of the Radcliffe Institute for Advanced Study (2014-2015). Prather has been recognized for excellence in teaching with the C. Michael Mohr Outstanding Faculty Award for Undergraduate Teaching in the Dept. of Chemical Engineering (2006, 2016), the MIT School of Engineering Junior Bose Award for Excellence in Teaching (2010), and through appointment as a MacVicar Faculty Fellow (2014), the highest honor given for undergraduate teaching at MIT.

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Adam Bratis
Associate Laboratory Director, Bioenergy Science and Technology
National Renewable Energy Laboratory

Dharik Mallapragada
Research Scientist
MIT Energy Initiative
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Dharik Mallapragada joined the MIT Energy Initiative in May 2018. Prior to MIT, Dharik worked at ExxonMobil Corporate Strategic Research, where he contributed to research on power systems modeling, life cycle assessment and also led a research program to study energy trends in developing countries. Through his Ph.D. and nearly five years of research experience in the chemicals and energy industry, Dharik has worked on a range of sustainability-focused research topics such as designing light-weight composite materials and carbon-efficient biofuel pathways, as well as developing novel tools for energy systems analysis. His research interests include the design of novel energy conversion processes and their integration into the energy system. At MIT, Dharik is working on advancing power systems modeling tools to study questions around renewables integration and economy-wide electrification.

Dharik holds a M.S. and Ph.D. in Chemical Engineering from Purdue University. He received a B.Sc. in Chemical Engineering from the Indian Institute of Technology, Madras.

Karine Boissy-Rousseau
President, Hydrogen Energy & Mobility
Air Liquide North America