MIT Industrial Liaison Program Faculty Knowledgebase Report

Energy

May 9, 2022 1:00 pm - 3:00 pm

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Welcome & Introduction
CJ (Changjie) Guo
Program Director, MIT Corporate Relations

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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.

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Session Introduction & Framing: The Energy Transition Challenges and Why We Formed the Future Energy Systems Center
Robert Armstrong
Chevron Professor of Chemical Engineering
Director, MIT Energy Initiative (MITEI)

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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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Future Energy Systems Center Projects: What is Completed, What is in the Works, and Future Ideas
Randall Field
Executive Director, Future Energy Systems Center, MIT Energy Initiative (MITEI)

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Randall Field is the executive director of the MITEI's Future Energy Systems Center. He was previously executive director for the Mobility Systems Center, MITEI's Low-Carbon Energy Center assessing the impact of emerging transformations in vehicle and fuel technologies, service and business models, policies, demographics, and consumer behavior in the movement of both passengers and goods. He was also the executive director for MIT's Mobility of the Future study which produced the *Insights in the Future Mobility* report covering global projections of alternative fuel vehicle fleets and energy consumption, deployment of charging and fueling infrastructure, attitudes towards mobility, and the impacts of innovative technologies and business models on urban mobility. As executive director for the Conversion Research Program at MIT for 10 years, Field worked with a multidisciplinary team of researchers to explore various conversion technologies for production of alternative fuels. Prior to MIT, Field worked for Aspen Technology for 23 years. Field received a SM in chemical engineering practice from MIT and a BS in chemical engineering from Caltech.

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Energy Transition Panel
Robert Stoner
Deputy Director for Science and Technology, MIT Energy Initiative (MITEI)
Founding Director, MIT Tata Center

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Deputy Director for Science and Technology, MIT Energy Initiative (MITEI)
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Robert J. Stoner is an inventor and technology entrepreneur who has worked extensively in academia and industry throughout his career, having 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. Stoner also serves as Director of the Tata Center for Technology and Design at MIT, and as the faculty co-director of the MITEI Electric Power Systems Center. His current research relates to energy technology and policy for developing countries. He earned his Bachelor's degree in engineering physics from Queen's University, and his Ph.D. from Brown University in condensed matter physics.

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Jennifer Morris
Research Scientist
MIT Energy Initiative (MITEI)

Tim Schittekatte
Postdoctoral Associate
MIT Energy Initiative (MITEI)

Bilge Yildiz
Professor, Nuclear Science and Engineering
Professor, Materials Science and Engineering

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Q&A and Closing Remarks