



ME Department Seminar

Linking Materials Synthesis to Manufacturing Scalability



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Abstract

To forestall the most destructive effects of global climate change, we have a mere 30 years to increase our energy supply's share of low-carbon energy by more than 300% relative to that in 2010. History has shown, however, that the technologies required to effect such sweeping changes typically require many decades to and deploy. We need to develop as many strategies as possible to accelerate the timeline from promising materials concept to validation, optimization, and scale-up commercialization of novel materials. This presentation will outline work to assess the manufacturing scalability of new materials, touching on the following factors: 1) availability and supply of necessary process inputs and infrastructure, 2) how process drives product properties and production costs, and 4) how well specified can a materials-intensive technology be in early stage development.

Bio

Elsa Olivetti is the Atlantic Richfield Associate Professor of Energy Studies in the Department of Materials Science and Engineering. Her research focuses on improving the environmental and economic sustainability of materials using methods informed by materials economics, machine learning, and techno-economic analysis. She has received the NSF Career award for her experimental research focused on beneficial use of industrial waste materials. Dr. Olivetti received her B.S. degree in Engineering Science from the University of Virginia. Her Ph.D. in Materials Science and Engineering from MIT was focused on development of cathode materials for lithium ion batteries.