

## CBE Seminar Series - Fall 2017

Mondays at 9:00am in Olin 165

# August & September

### August 28 – Ryan Hartman, New York University

#### *Multiphase Microreaction Engineering with Online Analytics for Chemicals, Energy, and Materials*



Ryan L. Hartman is Assistant Professor in the Department of Chemical and Biomolecular Engineering at New York University. He completed his postdoctoral research in the Department of Chemical Engineering at the Massachusetts Institute of Technology, Cambridge. He earned his Ph.D. and M.S.E. in Chemical Engineering from the University of Michigan, Ann Arbor and his B.S. in Chemical Engineering from Michigan Technological University, Houghton.

Hartman's laboratory investigates flow chemistry with microsystems using catalysis and reaction engineering principles. Their contributions impact the design of processes and systems, ranging from the molecular-to-the-macro- length scales. Continuous-flow manufacturing, flow chemistry, microchemical systems, and molecular management are major themes of our laboratory. Applied mathematics are essential in each area in order to derive predictive models that impact society.

Hartman's research has been featured in *Chemical & Engineering Technology*, *Industrial & Engineering Chemistry Research*, the *Journal of Flow Chemistry*, *Organic Process Research & Development*, *Lab on a Chip*, *Reaction Chemistry & Engineering*, and at conferences and seminars worldwide. He is the Reaction Engineering Programming Chair of the American Institute of Chemical Engineers. He is also co-inventor of twelve U.S. Patents, sixteen U.S. Patent Applications, and his contributions have helped to enable natural gas production and the continuous manufacture of fine chemicals and pharmaceuticals.

### September 11 – Arthi Jayaraman, University of Delaware

#### *Linking Molecular Design to Structure and Thermodynamics in Macromolecular Soft Materials*



Arthi Jayaraman received her B.E (Honors) degree in Chemical Engineering from Birla Institute of Technology and Science, Pilani, India in 2000. She received her Ph.D. in Chemical and Biomolecular Engineering from North Carolina State University in 2006, and from 2006-2008 conducted her postdoctoral research in the department of Materials Science and Engineering at University of Illinois-Urbana Champaign. In August 2008 she joined the faculty of the Department of Chemical and Biological Engineering at University of Colorado at Boulder, and held the position of Patten Assistant Professor. In August 2014 she joined the faculty at the University of Delaware as Associate professor of Chemical and Biomolecular Engineering and Materials Science and Engineering. She has been awarded the Saville Lectureship at Princeton University (2016), the AIChE COMSEF division young investigator award (2013), the ACS PMSE division young investigator recognition (2014), University of Colorado Provost Faculty Achievement Award (2013), Department of Energy (DOE) Early Career Research Award (2010), the University of Colorado outstanding undergraduate teaching award (2011) and graduate teaching award (2014) in Chemical and Biological Engineering. Her research expertise lies in development of theory and simulation techniques and application of these techniques to study polymer functionalized nanoparticles and polymer nanocomposites, and to design macromolecular materials for biomedical applications.

### September 18 – Michael Harold, University of Houston

#### *Multi-Functional Structured Catalysts For Clean Exhaust from Lean Burn Vehicles*



Michael P. Harold received his B.S. in Chemical Engineering from Penn State in 1980 and his PhD in Chemical Engineering from the University of Houston in 1985. Mike joined the faculty of the Chemical Engineering Department at the University of Massachusetts at Amherst, where he became Associate Professor in 1991. In 1991 Mike was a Visiting Research Scholar at the Chemical Technology Department of University of Twente in Enschede, the Netherlands. In 1993 Mike joined DuPont Company where he held several research and supervisory positions. In 1999 Mike was appointed Research Manager of the Chemical Process Fundamentals Group in the Central Research Department of the DuPont Company. While at DuPont Mike was Adjunct Professor at the University of Delaware and was Chair of the Catalysis and Reaction Engineering Division of AIChE. In his R&D supervisory roles at DuPont Mike led programs to develop breakthrough technologies for the manufacture of key industrial polymers and their corresponding chemical intermediates, and synthetic melt-spun fibers. Mike then moved back to academia as chair of the UH Department of Chemical Engineering, which later became the Department of Chemical and Biomolecular Engineering. He served this post until fall 2008.

Mike's research expertise and interests are in the area of chemical reaction engineering, with specific focus on reaction-separation devices, inorganic membrane synthesis and applications, and catalytic and biocatalytic materials. Mike has 90 refereed publications, over 100 presentations at technical conferences, and over 60 invited seminars and lectures.

### September 25 – Donald Sadoway, Massachusetts Institute of Technology

#### *Innovation in Stationary Electric Storage: the Liquid Metal Battery*



Donald R. Sadoway is the John F. Elliott Professor of Materials Chemistry in the Department of Materials Science and Engineering at the Massachusetts Institute of Technology. Born in Toronto, he obtained the B.A.Sc. in Engineering Science, the M.A.Sc. in Chemical Metallurgy, and the Ph.D. in Chemical Metallurgy, all from the University of Toronto. After a year of postdoctoral study at MIT as a NATO Fellow, he joined the faculty in 1978. The author of over 150 scientific papers and holder of 18 U.S. patents, his basic research centers on electrochemical processes in molten salts, ionic liquids, and polymers. With a markedly environmental focus his applied research is directed towards environmentally sound technologies for the extraction, refining, and recycling of metals, and the development of rechargeable batteries for grid-level storage. From 1995 to 2005 he held a MacVicar Faculty Fellowship, MIT's highest award for excellence in undergraduate education. In 1999 he became the John F. Elliott Professor of Materials Chemistry. In 2012 he was named by TIME magazine as one of the 100 most influential people in the world. In 2013 he was awarded an honorary doctorate from the University of Toronto, D. Eng., honoris causa.