



CIVIL & ENVIRONMENTAL ENGINEERING SEMINAR SERIES

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MAST Center- NSF I/UCRC and Membrane Liquid Separations

This talk has two parts. First, I will very briefly describe the NSF Industry/University Cooperative Research Center called the “Membrane Science, Engineering and Technology Center”. We call it by an inexact acronym, MAST Center. NJIT is one of the four University sites of this Center. I will introduce a few examples of research on membrane-based liquid separations carried out at this Center by NJIT researchers; I will bring in a few other examples of membrane liquid separations research as well. The second part of the talk deals with the NJIT-BGU collaboration on “Membrane Fouling Control via Surface-Modified Hollow Fiber Membranes Exposed to Cross Flow”. Faculty members, Roy Bernstein, Avner Ronen, and David Katoshevski, from BGU and Kamalesh K. Sirkar and Boris Khusid, from NJIT, are collaborating on this project. Membranes get fouled during operation. The strategy to control fouling involves using hollow fiber membranes having certain type of membrane surface modifications and the liquid feed in crossflow with an appropriate hollow fiber bundle design allowing enhancement of generation of secondary flows all around to spontaneously keep cleaning the membrane surface. We will illustrate this concept, its past success with membrane distillation, and where we are now. There is also a modeling part to this activity.

Kamalesh K. Sirkar is a Distinguished Professor of Chemical Engineering at the New Jersey Institute of Technology. Sirkar is an internationally renowned expert in membrane separation technologies. He is the inventor of the commercialized membrane-based solvent extraction technology for which Hoechst Celanese received Honorable Mention in the 1991 Kirkpatrick Award. He has pioneered among others the notion of microporous membranes as membrane contactors of two immiscible fluid phases as well as the contained liquid membrane. Sirkar was a professor of Chemical Engineering at IIT, Kanpur as well as at Stevens Institute of Technology. He has received a number of honorary degrees and awards including the 2005 AIChE Institute Award for Excellence in Industrial Gases Technology, the 2008 Clarence Gerhold Award of the Separations Division of AIChE, and 2017 Alan S. Michaels Award for Innovation in Membrane Science and Technology by the North American Membrane Society (NAMS). He was the Ex- Editor-in-Chief of the journal, Current Opinion in Chemical Engineering during January, 2011- June, 2021.

Thursday, March 24th, 2022 | 12:00 PM EDT | 18:00 Israel Time

Click Here: [Zoom Meeting Link](#)