

Emerging Horizons for Process Systems Engineering: Artificial Intelligence and Education

Abstract

Process systems engineering is an interdisciplinary field within Chemical and Biochemical Engineering that its main objective is development of systematic procedures based on mathematical models and computational techniques for the analysis, design, operation, control and optimization of process systems. These can range from industrial scale processes in chemical, bio-/pharmaceutical and agro-chemical to microsystems, and more recently is extended to molecular and bio-molecular systems. In this talk, first an overview of the status within process systems engineering will be given. This will be followed by examples of extending process systems engineering methods and tools to use data, non-invasive measurement technologies, such as image analysis and how experimental approaches and model-based methodologies can be combined to more efficiently finding novel solutions to complex problems in chemical, biochemical and bio-pharmaceutical manufacturing. Further, an application of systems thinking develop virtual labs for education will be elaborated.

Bio sketch

Dr. Seyed Soheil Mansouri is an Assistant Professor in the Department of Chemical and Biochemical Engineering at the Technical University of Denmark (DTU) since February 2018 and affiliate faculty at Sino-Danish Center for Education and Research in Beijing, China. He received his PhD (2016) and MSc (2013) in chemical and biochemical engineering both from DTU. His current research is primarily focused on developing systematic methods and tools for synthesis, design, control/ optimization of chemical and bio-pharmaceutical processes with an aim to achieve more sustainable production and consumption. He is a senior member of American Institute of Chemical Engineers (AIChE) and a Danish delegate to Computer Aided Process Engineering (CAPE) Working Party of European Federation of Chemical Engineers (EFCE).

