Special Session on "Intelligent Tools in Chemical and Process Engineering"

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This special IS session aims to explore state-of-the-art advancements in intelligent tools in (bio)chemical and process engineering by providing innovative solutions to complex problems, optimizing processes, and improving efficiency. These tools can be in the form of **advanced process simulation software** that utilizes mathematical models to simulate and analyze processes, to design, optimize, and troubleshoot unit operations in a virtual environment before implementation in the real world, **advanced process control system** that incorporates model-based predictive control (MPC), fuzzy logic control, neural networks to continuously monitor process variables, predict future behavior to achieve optimal operation, and **advanced data analytics** that extracts valuable insights from large datasets generated by chemical and processes, improve product quality, reduce costs, and enhance sustainability enabling engineers to tackle complex challenges and drive innovation in the chemical and process industries.

Papers submitted to this session are expected to present results on various aspects of these intelligent tools. Topics may include but are not limited to process simulation, artificial intelligence, real-time monitoring, and the integration of data from sensors, process models, and historical performance data through digital twins. Authors are encouraged to share empirical research, case studies, and practical implementations that demonstrate the impact of these intelligent tools in chemcial and/or process environment.

Seyed Soheil Mansouri has a PhD in

Abhishek Dutta has a PhD in Chemical Engineering from Ghent University, Belgium. He is currently associated with Izmir Institute of Technology, Turkey and is the group leader of Industrial Flow and Process Modeling group (iFPmg).