EFCE Spotlight Talks

Working Party on Mixing

6 November 2024

09:20-11:00 CET

EFCE

Reduced order modelling for mixing processes

Reduced Order Modeling (ROM) is a mathematical technique used to simplify complex systems by reducing the number of variables or equations needed to describe them. This is achieved by identifying key features of the system that dominate its behavior while ignoring less significant details. In this way, it captures the essential features of the system while ignoring less significant details, allowing for faster calculations with minimal loss of accuracy.

ROM can be highly beneficial for industrial mixing processes, since these typically involve complex fluid dynamics that are computationally expensive to simulate in full detail. ROM allows for faster and more efficient simulations by capturing the key characteristics of the flow patterns and other related characteristics, enabling engineers to optimize processes, predict performance, and scale up operations without sacrificing accuracy. This can lead to cost savings, improved product quality, and more efficient design of industrial mixing equipment.

This webinar aims at presenting two examples of using ROM for predicting process characteristics and performance in mixing applications.

PROGRAM

09:20 **Welcome and introduction**
Joelle Aubin, Chair Working Party on Mixing
Jarka Glassey, EFCE Executive Vice-President

09:30 **AI-derived reduced order models and their applications in the formulation industries**
Christopher Windows-Yule, University of Birmingham - UK

10:10 **Reconstruction of the large-scale structures in stirred vessels using reduced order models and limited sensor data**
George Papadakis, Imperial College London - UK

10:50 **Conclusion**
Joelle Aubin, Chair Working Party on Mixing

REGISTRATION

free of charge but mandatory

Contact: martine.poux@toulouse-inp.fr
joelle.aubin@toulouse-inp.fr