

# EFCE Spotlight Talks

Working Party on  
Fluid Separations

21 March  
2024

14:00-16:00  
CET



## OPTIMAL DESIGN AND OPERATION OF NEXT GENERATION DISTILLATION PROCESSES

*Distillation is the most important separation process in the chemical process industry despite being highly energy-intensive. Any attempt to optimize its design and operation may therefore potentially have a significant impact both financially and in terms of environmental impact. The optimization of a distillation system is a Mixed Integer Nonlinear Programming (MINLP) problem, as well as a highly non-convex problem, and finding global optimal solutions is both challenging and time consuming. This webinar will, through a number of industrially relevant examples, highlight strategies for how to set up and solve challenging optimization problems and, in particular, discuss the benefits of systematic considerations for design and operation for advanced distillation processes including dividing wall columns, reactive distillation and hybrid separation systems.*

### PROGRAM

- 14:00 **Welcome and introduction**  
Prof. Jens-Uwe Repke, Vice-Chair Working Party on Fluid Separations  
Prof. Boelo Schuur, EFCE Scientific Vice-President, Secretary of the WP on Fluid Separations
- 14:10 **Synthesis of energy efficient distillation processes with and without heat pumps**  
Prof. Rakesh Agrawal, Purdue University - USA
- 14:40 **Towards systematic design of distillation-based separation processes for non-ideal and azeotropic mixtures**  
Prof. Mirko Skiborowski, Technical University Hamburg (TUHH) - Germany
- 15:10 **Optimal design and operation of hybrid reactive dividing wall distillation columns**  
Prof. Eva Sorensen, University College London - UK
- 15:40 **Discussion and conclusion**  
Prof. Jens-Uwe Repke, Vice-Chair Working Party on Fluid Separations

[REGISTRATION](#)

*free of charge but mandatory*

Contact: [martine.poux@toulouse-inp.fr](mailto:martine.poux@toulouse-inp.fr)  
[e.sorensen@ucl.ac.uk](mailto:e.sorensen@ucl.ac.uk)