EFCE Spotlight Talks

by the Working Parties and Sections

9-17 March 2026

9 webinars

EFCE
European Federation of Chemical Engineering

Welcome to the 9th spotlight talks series
Spring Series 2026

9 March • 14:00	**Design rules vs digital twins: How far can modelling go?**
10 March • 16:00	**Membrane Engineering for a circular economy**
12 March • 10:30	**New applications of electrostatics in chemical engineering**
12 March • 15:00	**Crystallization for pharmaceutical applications**
13 March • 10:00	**Why spray drying keeps us busy: the science behind continuous innovation**
13 March • 15:00	**Application of artificial intelligence (AI) to chemical reaction engineering and process intensification**
16 March • 14:00	**Ethics in Chemical Engineering Education**
17 March • 10:00	**Thermodynamics for Zero-to-Low Emission Technologies – Mini Series: Part 1. Heat Pumps**
17 March • 14:00 CET	**Landing your first job in academia or industry: tips to stand out in applications and interviews**

This spring, a total of nine sessions of spotlight talks will be organized by eleven of the working parties and sections of the EFCE. These sessions offer a valuable opportunity to learn more about very specific topics, without having to travel. We consider these Spotlight Talks as a low-barrier opportunity to get involved or stay involved with EFCE activities. The Spotlight Talk Sessions complement the in-person activities such as the ECCE-ECAB conference, but since this is an even year with no ECCE-ECAB, in 2026 we will organize a spring session and a fall series. This upcoming spring series starts on 9. March with a session on design rules and digital twin modelling, and the last one will be organized by the Early Career Chemical Engineers on 17. March and is about preparing yourself for an interview. In between we have seven other highly interesting sessions, and each session is about two hour with usually three speakers, all specialists in their field. Attendance is for free! (registration is required, but no fee is charged) Covering a wide range of working parties and sections, there will likely be one or more sessions with topics of your interest.

We hope that between the 9th and 17th of March you enjoy some of this spring's Spotlight Talk Sessions!

EFCE Spotlight Talks

Working Parties on Mixing and Multiphase Fluid Flow

9 March 2026

14:00-16:00 CET

EFCE

Design rules vs digital twins: How far can modelling go?

For the design and operation of stirred tank reactors, numerical simulations are becoming increasingly important and are sometimes perceived as more reliable and accurate than conventional design approaches based on dimensionless numbers. However, the results obtained from these tools are frequently less transparent and often difficult to interpret. In addition, numerical simulations are not always as accurate or reproducible as commonly assumed. In this Spotlight Talk, we highlight both the potential and the limitations of numerical simulations for single-phase and multiphase mixing equipment. We discuss which questions can be reliably addressed with these advanced numerical tools and how their performance compares with conventional design rules. Particular attention is given to the challenges of acquiring experimental data that are sufficiently accurate to validate sophisticated simulations. Finally, we examine when simple rules of thumb are adequate—and when detailed numerical simulations become indispensable.

PROGRAM

14:00 **Welcome and introduction**
Joelle Aubin, Chair of the Working Party of Mixing
Michael Schlüter, Chair of the Working Party Multiphase Fluid Flow
António Gonçalves da Silva, EFCE Executive Vice-President

14:10 **Characterisation and prediction of transitional regime flow phenomena in stirred tank mixing**
Georgina Wadsely, Unilever - United Kingdom

14:40 **Reproducibility of large eddy simulations for mixing in stirred tank reactors**
Cees Haringa, Bioprocess Engineering, TU Delft - The Netherlands

15:10 **Multiphase and multiscale modeling of nuclear waste simulants in stirred tanks: an industrial approach"**
Jason Giacomelli, SPX Flow - USA

15:40 **Discussion**
Joelle Aubin, Chair of the Working Party of Mixing, University of Toulouse - France
Michael Schlüter, Chair of the Working Party Multiphase Fluid Flow, Hamburg Univ. of Technology, Hamburg - Germany

REGISTRATION

free of charge but mandatory

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EFCE Spotlight Talks

Section on Membrane Engineering

10 March 2026

16:00-17:45 CET

EFCE

Membrane Engineering for a circular economy

Circular economy is at the basis of a sustainable development and it is becoming crucial in view of the continuous grow of population, of an increasingly consumerist society and of an acceleration of industrial productions. The reuse and recycling of existing materials and products is, in fact, the key to minimize waste production and raw sources depletion. Membrane operations are known to be sustainable since they operate in mild conditions and without the use of chemicals. Moreover, they can be applied to valorize waste streams, through the separation and recovery of species of interest, thus contributing to the circular economy goals. However, after their life time, membranes must be disposed, and end-of-life treatments need to be defined. In this webinar, the contribution of membrane operations for the recovery of hydrogen from e-fuels and of biomolecules from winemaking by-products are reported as case studies. Moreover, the "cradle-to-grave" path of nanofiltration is presented and discussed.

PROGRAM

16:00 **Welcome and introduction**
Alessandra Criscuoli – Chair Section on Membrane Engineering
Boelo Schuur, EFCE Scientific Vice-President

16:10 **Towards circularity in nanofiltration: from building blocks to end-of-life treatments**
Gyorgy Szekely, King Abdullah University of Science and Technology (KAUST)- Saudi Arabia

16:40 **The valorisation of hydrogen in e-fuels by membrane operations**
Giuseppe Barbieri, Instituto per la Tecnologia delle Membrane (CNR-ITM) – Italy

17:10 **Recovery of biomolecules from winemaking by-products: A path towards circular economy in the wine industry**
Maria Norberta dePinho, Universidade de Lisboa (ULisboa) – Portugal

17:40 **Conclusion**
Alessandra Criscuoli – Chair Section on Membrane Engineering

REGISTRATION

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EFCE Spotlight Talks

Working Party on Static Electricity in Industry

12 March 2026

10:30-12:00 CEST

EFCE

New applications of electrostatics in chemical engineering

Electrostatics is a cross-disciplinary field in Chemical Engineering, ranging from the risks associated with static charge during production processes or material handling, to applications in materials, material separation, filtration, and more. In this webinar, we will describe two innovative applications recently presented at the International Conference on Electrostatics (Electrostatics 2025).

The first presentation, by Benjamin Hotte, introduces a promising application of electrostatics in the separation of black mass for battery recycling, which can improve process efficiency.
The second application, presented by Prof. Stéphane Holé, combines for the first time the use of cyclic voltammetry and space-charge measurement to monitor electrochemical processes at an electrode/electrolyte interface, which could be applied to battery characterization.

PROGRAM

10:30 **Welcome and introduction**
Prof. Pedro Llovera, Chair of the WP on Static Electricity, Energy Technological Institute, Polytechnic University of Valencia - Spain
Boelo Schuur, EFCE Scientific Vice-President

10:40 **Application of triboelectrification for electrical vehicle active battery component.**
Benjamin Hotte, Dep. of Chemical and Biological Engineering, Univ. of Ottawa, Canada

11:15 **Coupling space charge distribution and cyclic voltammetry measurements.**
Prof. Stéphane Holé, LPEM, Sorbonne University, ESPCI Paris – PSL University, CNRS Paris – France

11:45 **Concluding remarks**
Prof. Pedro Llovera-Segovia, Chair of WP Static Electricity in Industry

REGISTRATION

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EFCE Spotlight Talks

Working Party on Crystallization

12 March 2026

15:00-17:00 CET

EFCE

Crystallization for pharmaceutical applications

Join leading experts from academia and industry as they present recent advances in crystallization for pharmaceutical applications. This webinar will explore the fundamentals of crystallization, process development from experimental methods to industrial perspectives. The session will bridge cutting-edge research with real-world pharmaceutical needs.

Don't miss this in-depth look into the present and future of pharmaceutical crystallization.

PROGRAM

15:00 **Welcome and introduction**
Daniele Marchisio, Chair of the Working Party On Crystallization
Antonello Raponi, Ecole des Mines de St Etienne - France
António Gonçalves da Silva, EFCE Executive Vice-President

15:10 **Quality-by-control and digital design approaches for crystallization systems**
Zoltan K. Nagy, Davidson School of Chemical Engineering, Purdue University
West Lafayette, Indiana - United States

15:35 **In-silico-first strategy for designing crystallization processes for pharmaceutical APIs**
Neda Nazemifard, Synthetic Molecule Process Development, Takeda Development Center Americas, Inc., Cambridge, Massachusetts - United States

16:00 **Advancing convection-free protein crystallization: modulating silica-gel interactions to enhance nucleation"**
Lorena Pasero, Department of Applied Science and technology, Politecnico di Torino – Italy

16:25 **Ab initio modeling in the development of the crystallization processes for pharmaceuticals**
Christopher Burcham, Department of Chemical and Biomolecular Engineering, University of Illinois, Urbana-Champaign - United States

16:50 **Concluding remarks**
Daniele Marchisio, Chair of the Working Party On Crystallization
Antonello Raponi, Ecole des Mines de St Etienne - France

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EFCE Spotlight Talks

Working Party on Drying

13 March 2026

10:00-12:15 CET

EFCE

Why spray drying keeps us busy: the science behind continuous innovation

Spray drying, invented more than 150 years ago, has become indispensable across food, pharmaceutical, and chemical industries — yet it still demands continuous innovation to meet modern performance and sustainability demands. In this webinar it will be explained why a technology so well established must still be redesigned, adapted, and re-engineered. You will see which stages of the classic spray drying process are being redesigned today and whether these innovations can be integrated into existing equipment or require entirely new systems. Each analyzed modification will be linked to the specific problem it aims to solve — from energy use, to product quality/stability and process robustness. Case studies will show research results demonstrating how these new concepts work in practice. Limitations, unresolved technical hurdles, economic factors and directions for future development will also be addressed. Altogether, the session will highlight how a century-and-a-half-old technology continues to evolve — and why these modifications matter.

PROGRAM

10:00	**Welcome and introduction** Prof. Maarten Schutyser, Chair WP on Drying, Wageningen Univ. & Research - The Netherlands Prof. Katarzyna Samborska, Warsaw Univ. of Life Sciences - Poland Boelo Schuur, EFCE Scientific Vice-President
10:10	**Dehumidified air spray drying** PhD Alicja Barańska-Dołomisiewicz, Warsaw Univ. Life Sciences, Dep. Food Engineering - Poland
10:40	**Superheated steam spray drying** Prof. Reinhard Kohlus, Univ. of Hohenheim, Dep. of Process Eng. and Food Powders - Germany
11:10	**Vortex chamber spray drying** Prof. Juray de Wilde, Univ. Catholique de Louvain - Belgium
11:40	**Heat pump-assisted spray drying** Dr. Cordin Arpagaus, OST, Eastern Switzerland Univ. App. Sci., Inst. Energy Syst. - Switzerland
12:10	**Conclusion** Prof. Maarten Schutyser, Chair WP on Drying Prof. Katarzyna Samborska, Warsaw Univ. of Life Sciences - Poland

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EFCE Spotlight Talks

Working parties on Process Intensification and Chemical Reaction Engineering

13 March 2026

15:00-17:15 CET

EFCE

Application of artificial intelligence (AI) to chemical reaction engineering and process intensification

In recent years, application of Artificial Intelligence (AI) in chemical engineering has rapidly grown as a game-changer and driver for process and product innovation, improved energy and materials resource efficiency, and sustainable chemical manufacturing. This webinar presents a structured perspective on the application of AI in Chemical Reaction Engineering and Process Intensification, progressing from knowledge-based and symbolic AI foundations, through domain-informed chemical engineering perspectives, to agentic and generative AI approaches for chemical process design and system-level views on the evolving role of AI in intensified chemical processes. Emphasis is placed on the integration of domain knowledge, physical insight, and engineering expertise into AI-driven methodologies, highlighting their role in enabling robust and impactful solutions for next-generation chemical processes.

PROGRAM

15:00	**Welcome and introduction** Prof. Georgios Stefanidis, Chair of the Working Party on Process Intensification Prof. Kevin Van Geem, Chair Working Party on Chemical Reaction Engineering Boelo Schuur, EFCE Scientific Vice-President
15:10	**A Knowledge Foundation for Symbolic AI in Engineering** Prof. Alexei Lapkin, University of Cambridge - United Kingdom
15:40	**Domain-Informed AI: A Chemical Engineering Perspective** Prof. Idelfonso B. R. Nogueira, Norwegian Univ. of Science and Tech. (NTNU) – Norway
16:10	**Agentic AI for Next-Generation Chemical Process Design** Prof. Artur Schweidtmann, TU Delft - The Netherlands
16:40	**Mapping the AI Journey in Process Intensification: From Prediction to Generation** Prof. Enis Leblebici, KU Leuven – Belgium
17:10	**Closing remarks** Prof. Georgios Stefanidis, Chair of the Working Party on Process Intensification Prof. Kevin Van Geem, Chair of the Working Party on Chemical Reaction Engineering

REGISTRATION

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EFCE Spotlight Talks

Working Party on Education

16 March 2026

14:00-16:30 CET

EFCE

Ethics in Chemical Engineering Education

In the wake of the COVID-19 pandemic and with the widespread availability of AI, ethical considerations in teaching have become a hot topic among educators, including members of the EFCE Working Party on Education. It is essential to remember, however, that professional ethics extend beyond technology; they encompass sustainability, responsibility, fairness, and other key principles. This session offers valuable insights into the needs of ethical education in chemical engineering from the perspectives of industrial leaders, early-career engineers, and educational experts, along with practical approaches to integrating these ethical principles into teaching practice. Don't miss this opportunity to connect with colleagues and explore how ethical awareness can shape responsible engineers and promote a positive societal impact.

PROGRAM

14:00	**Welcome and introduction** Edit Székely, Vice-Chair of the Working Party on Education Jarka Glassey, EFCE President
14:10	**Industrial perspectives on ethics in chemical engineering education** Alessando Bettoni, Technip Energies - Italy
14:40	**Everyday ethics in life of an early-career chemical engineer** Kseniya Papchenko, ISA BTP – UK, University of Pau and the Adour Region – France
15:10	**Ethics Education in Chemical Engineering** Tom Børsen, Aalborg University - Denmark
15:40	**Understanding ethics in chemistry; experiences of the Good Chemistry course** Jan Mehlich, Center for Life Ethics, Rheinische Friedrich-Wilhelms-Universität Bonn - Germany
16:10	**Panel discussion closed by final remarks** Edit Székely, Budapest University of Technology and Economics - Hungary

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EFCE Spotlight Talks

Working Party on Thermodynamics and Transport Properties

17 March 2026

10:00-12:00 CET

EFCE

Thermodynamics for Zero-to-Low Emission Technologies Mini Series: Part 1. Heat Pumps

We are living in a decisive decade for climate action and energy transformation. Achieving zero-to-low emission technologies is no longer a distant ambition, but an immediate engineering and societal challenge. From how we heat and cool industrial processes to how we supply energy more broadly, solutions must deliver high performance while drastically reducing energy use and greenhouse-gas emissions.

Thermodynamics lies at the heart of this transformation. As the science governing the conversion, transfer, and utilization of energy, it provides the fundamental framework to assess efficiency limits, guide technology development, and enable informed design choices. Ultimately, thermodynamics determines how effectively emerging technologies can contribute to decarbonization.

In this context, we have initiated the "**Thermodynamics for Zero-to-Low Emission Technologies" mini-series**, aiming to highlight how applied thermodynamics underpins key solutions for the energy transition. **Part 1 focuses on heat pumps**, one of the most impactful and rapidly expanding technologies for sustainable heating, cooling, and industrial heat supply. Through this series of presentations, we will explore the thermodynamic principles, performance metrics, and real-world challenges that shape heat pump design and deployment, emphasizing their critical role in building a low-carbon energy system.

PROGRAM

10:00	**Welcome and introduction** Prof. Maria-Grazia de Angelis, Chair WP-TTP, U. Edinburgh - UK Prof. Christoph Held, TU Dortmund - Germany Dr. Antoon ten Kate, Industrial Vice-Chair WP-TTP, ChemSpiration, Arnhem - NL Boelo Schuur, EFCE Scientific Vice-President
10:15	**High-temperature heat pumps: from mixture thermodynamics to net-zero heat supply systems** Prof. André Bardow, ETH Zürich, Energy and Process Systems Eng., Zürich - Switzerland
10:45	**The Power of Reversible Chemistry in Heat Pumps** Dr. Aya Barakat, NEEXT Engineering, Univ. de Lorraine, CNRS, LRGP, Nancy - France
11:15	**Heat Pumps – Technology & Research Directions** Prof. Arne Speerforck, Technische Universität Hamburg - Germany
11:45	**Discussion and conclusion** Prof. Maria-Grazia de Angelis, Chair WP-TTP, U. Edinburgh - UK Prof. Christoph Held, TU Dortmund - Germany Dr. Antoon ten Kate, Industrial Vice-Chair WP-TTP, ChemSpiration, Arnhem – NL
12:00	Closure

REGISTRATION

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EFCE Spotlight Talks

Section on Early Career Chemical Engineers

17 March 2026

14:00-16:00 CET

EFCE

Landing your first job in academia or industry: Tips to stand out in applications and interviews

This session aims to support early-career researchers and young professionals in successfully transitioning to their first position in academia or industry. It will provide practical guidance on writing effective CVs, navigating application processes and performing confidently in interviews. Through expert talks and a round-table discussion with industry recruiters, participants will gain first-hand insights into what employers look for, common pitfalls to avoid and how to stand out in a competitive job market.

PROGRAM

14:00	**Welcome and introduction** Theodoros Papalas, Chair Section on Early Career Chemical Engineers, Univ. Cambridge – UK Jarka Glassey, EFCE President
14:10	**The anatomy of an effective CV** Sofia Garcia Fracaro, Merck - Germany
14:40	**Chemical engineers between academia and industry: How to get fit for both worlds** Emanuele Moioli, Politecnico di Milano – Italy ; Paul Scherrer Institut - Switzerland
15:10	**Round table: How do industrial recruiters look at applications?** Lea Rapp, BASF – Germany Simona Bargiacchi, Cromology – Italy Elise Deblock, Solvay - France
15:55	**Closing** Theodoros Papalas, Chair Section on Early Career Chemical Engineers, Univ. Cambridge – UK Sara Marchini, Dresden University of Technology - Germany

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