EFCE Spotlight Talks

by the Working Parties and Sections

26 October • 4 November 2026

9 webinars

EFCE
European Federation of Chemical Engineering

Welcome to the 10th spotlight talks series Fall Series 2026

26 October • 14:00	Triboelectricity: fundamentals and applications in industry
27 October • 11:00	Sustainable scalable technologies for carbon capture, CO_2 utilisation and storage
28 October • 14:00	Electrification and decarbonization of distillation processes
29 October • 16:00	Electrochemical engineering for sustainable wastewater management: from pollutant removal to resource recovery
30 October • 14:00	Chemical recycling of plastics-recent developments in thermochemical technologies
2 November • 9:30	How pressure shapes polymer technologies
2 November • 14:00	Thermodynamics for zero-to-low emission technologies Mini series: part 2. Hydrogen
3 November • 14:00	From pore to plant: AI across the adsorption chain
4 November • 14:00 *CET*	Building startups in chemical engineering: an entrepreneurship guide for emerging innovators

This fall, a total of nine sessions of spotlight talks will be organized by nine of the working parties and sections of the EFCE. In this year where we do not have the larger ECCE-ECAB conference, this is an excellent opportunity to connect with EFCE from your own home or work and learn more about very specific topics in the fall season. The Spotlight Talk Sessions complement the in-person activities such as the ECCE-ECAB conference, and since this is an even year with no ECCE-ECAB, in 2026 we organize a second series of spotlight talk sessions in October/November. This upcoming series starts on 26 October and runs for the next eight working days, with the kick-off session on triboelectricity organised by our working party on Static Electricity, followed by sessions on scalable technologies for carbon capture, electrification and decarbonisation of distillation processes, electrochemical engineering, high pressure polymer technology, thermodynamics for zero-to-low emission technology, artificial intelligence for adsorption process development, incubating startup companies.
Each session is about two hours 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 26th of October and 4th of November you enjoy some of this fall's Spotlight Talk Sessions!

EFCE Spotlight Talks

Working Party on Static Electricity in Industry

26 October 2026

14:00-15:30 CET

EFCE

Triboelectricity: Fundamentals and Applications in Industry

Triboelectric charging, the electrification of materials through contact or friction, has been known since ancient times and represents the earliest observed manifestation of electricity. Despite its long history, the fundamental mechanisms governing charge transfer remain only partially understood. Many questions still exist regarding the dynamics of charge exchange, the factors influencing triboelectrification, and the methods used to characterize this phenomenon.
This webinar will provide an overview of the current understanding of triboelectrification in solid materials, highlighting both established knowledge and the challenges that continue to stimulate research in this field. It will then illustrate how triboelectric charging can be exploited in practical applications, with a particular focus on electrostatic separation technologies.

The first presentation, delivered by Prof. Daniel Lacks (Case Western Reserve University, USA), will discuss the fundamental physical mechanisms underlying triboelectrification, reviewing current knowledge as well as the key questions that still require deeper understanding.
The second presentation, delivered by Prof. Lucian Dascalescu (University of Poitiers, France) will focus on the application of triboelectricity to material separation processes. He will present the principles and advances of electrostatic separation technologies used for material sorting and recycling.

PROGRAM

14:00	**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
14:10	**What is known and what remains unknown about triboelectric charging** Prof. Daniel Lacks, Case Western Reserve University - USA
14:40	**Triboelectrostatic separation of materials in industry** Prof. Lucian Dascalescu, University of Poitiers – France
15:10	**Concluding remarks** Prof. Pedro Llovera-Segovia, Chair of WP Static Electricity in Industry

REGISTRATION

free of charge but mandatory

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EFCE Spotlight Talks

Section on Sustainability

27 October 2026

CET 10:00-12:00

EFCE

Sustainable scalable technologies for Carbon Capture, CO_2 Utilisation and Storage (CCUS)

This seminar explores cutting-edge Process Systems Engineering (PSE) frameworks to accelerate global net-zero goals through sustainable carbon and fuel value chains. Presentations will examine systemic designs for carbon capture, utilisation, and storage (CCUS) network infrastructure, alongside solar-driven direct air capture (DACCU) technologies. Speakers will evaluate the technical and economic pathways of integrating green hydrogen to synthesise scalable e-fuels, focusing on massive-scale ethanol production. Ultimately, the session addresses the critical operational opportunities and scaling hurdles of delivering viable sustainable aviation fuels (SAF) to market.

PROGRAM

10:00	**Welcome and introduction** Prof. Antonis Kokossis, Chair Section Sustainability Prof. Meihong Wang, University of Sheffield - UK Boelo Schuur, EFCE Scientific Vice-President
10:10	**Opportunities and Challenges for Aviation e-fuels** Prof. Nilay Shah, Imperial College London - UK
10:35	**Designing sustainable CCUS chains: a process systems engineering perspective** Prof. Fabrizio Bezzo, University of Padova - Italy
11:00	**Integrated CO_2 hydrogenation process for large-scale ethanol production** Dr. Jie Li, University of Manchester - UK
11:25	**Systems Engineering for Solar-driven Direct Air Capture and CO2 Utilisation (DACCU) to produce sustainable aviation fuel (SAF)** Prof. Meihong Wang, University of Sheffield - UK
11:50	**Panel discussion and Conclusion** Prof. Meihong Wang, University of Sheffield - UK

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EFCE Spotlight Talks

Working Party on Fluid Separations

28 October 2026

14:00-16:00 CET

EFCE

Electrification and Decarbonization of Distillation Processes

Distillation remains one of the major energy consumers in the chemical and process industries, and electrification offers a way to reduce the use of fossil fuels for process heating and the related CO_2 emissions. This Spotlight Talk session focuses on heat-pump assisted distillation and vapor recompression as technologies for improving energy efficiency and enabling electrified operation.
The talks will cover advanced dividing-wall column configurations, heat-pumped distillation concepts, developments in the electrification of distillation, and equipment design for vapor recompression and heat-pump applications. The session will address both process concepts and their practical implementation.

PROGRAM

14:00	**Welcome and introduction** Igor Dejanovic, Vice-Chair of the WP on Fluid Separations, Univ. Zagreb - Croatia Boelo Schuur, EFCE Scientific Vice-President
14:10	**Quaternary dividing wall columns and some new concepts for heat-pumped distillations** Rakesh Agrawal, Purdue University – USA
14:40	**Focusing on electrification of distillation** Lucas A.T. Poker, TU Delft – The Netherlands
15:10	**Equipment design for vapor recompression and heat pumps** Armin Rix, formerly Evonik - Germany
15:40	**Concluding remarks** Igor Dejanovic, Vice-Chair of the WP on Fluid Separations, Univ. Zagreb - Croatia

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EFCE Spotlight Talks

Working Party on Electrochemical Engineering

29 October 2026

16:00-18:00 CET

EFCE

Electrochemical Engineering for Sustainable Wastewater Management: From Pollutant Removal to Resource Recovery

Electrochemical engineering is emerging as a powerful enabler of sustainable wastewater management, offering new pathways beyond conventional pollutant removal towards resource recovery and valorization. This webinar will explore how electrically driven processes can transform wastewater and waste streams into valuable products while reducing environmental impacts and supporting the transition to a circular economy. The first part will highlight the concept of electrorefineries, integrating electrochemical reactions, separations, and renewable electricity for sustainable chemical production. The second will address electrochemical organic waste reforming, coupling water purification with the conversion of organic matter into sustainable hydrogen. The final part will focus on selective electrochemical nutrient recovery from wastewater, enabling the production of valuable nutrient resources. Together, these approaches illustrate the potential of electrochemical engineering to integrate pollutant removal, chemical production, energy generation, and nutrient recovery within sustainable and circular wastewater systems.

PROGRAM

16:00	**Welcome and introduction** Karel Bouzek, Chair of the WP on Electrochemical Engineering Emmanuel Mousset, WP French Delegate, CNRS, GEPEA - France Boelo Schuur, EFCE Scientific Vice-President
16:10	**Electrorefineries: electrifying chemical refining for a circular and sustainable future** Manuel A. Rodrigo, University of Castilla-la-Mancha - Spain
16:45	**Electrochemical organic waste reforming for sustainable hydrogen production and water purification** Carlos Martinez-Huitle, Federal University of Rio Grande do Norte - Brazil
16:20	**Selective electrochemical recovery of nutrients from wastewater for a circular economy** William Tarpeh, Stanford University - USA
17:55	**Conclusion** Emmanuel Mousset, WP French Delegate, CNRS, GEPEA - France

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EFCE Spotlight Talks

Section on Sustainability

30 October 2026

14:00-16:15 CET

EFCE

Chemical Recycling of Plastics-recent Developments in Thermochemical Technologies

Chemical, thermal and solvothermal conversion routes such as pyrolysis and hydrothermal liquefaction (HTL) offer complementary pathways for transforming plastics waste into valuable liquid fuels, chemicals, and monomers. This session will discuss recent advances in these areas. The webinar aims to highlight how these thermochemical technologies can complement mechanical recycling to support a circular plastics economy. Join us for an engaging discussion on the state of the art and future directions for converting plastics via chemical technologies.

PROGRAM

14:00	**Welcome and introduction** Prof. Antonis Kokossis, Chair Section Sustainability Ass. Prof. Shiju Raveendran, Catalysis Eng. Group, Univ. Amsterdam - The Netherlands Jarka Glassey, EFCE President
14:10	**Advances in solvothermal molecular recycling of PET** Prof. Phillip E. Savage, Inst. of Energy and the Environment, Penn State University - USA
14:40	**Chemical recycling of plastics: constraints and opportunities** Dr. Ahmad Al Farra, TotalEnergies Research & Technology, Gonfreville - France
15:10	**Process intensification in plastic waste pyrolysis through selective microwave heating** Dr. Ignacio Julián Burillo, Grupo de Tecnologías Industriales de Reciclado, Zaragoza - Spain
15:40	**Assessing the economic feasibility of olefins production from plastic waste via hydrothermal liquefaction** Dr. Roni Mallick, Catalysis Engineering Group, University of Amsterdam – The Netherlands
16:10	**Conclusion** Ass. Prof. Shiju Raveendran, Catalysis Eng.Group, Univ.Amsterdam - The Netherlands

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EFCE Spotlight Talks

Working Parties on High Pressure Technology and Polymer Reaction Engineering

2 November 2026

9:30-12:00 CET

EFCE

How Pressure Shapes Polymer Technologies

Working under high-pressure conditions can have various benefits such as increased solubility, higher reaction rates or better selectivity. Therefore, it has been applied for decades in engineering applications and the chemical industry. Within this Spotlight Talk Series applications of high-pressure to polymer technologies are highlighted. They range from reliable assessment of monomer stability, simultaneous kinetic and thermodynamic modeling of polymerization processes under high pressure conditions to polymer processing and circularity. Examples are presented both from academic as well as industrial points of view.

PROGRAM

09:30	**Welcome and introduction** Maria José Cocero Alonso, Chair WP on High Pressure Technology, Univ. de Valladolid - Spain Markus Busch, Chair WP on Polymer Reaction Engineering, TU Darmstadt - Germany Jarka Glassey, EFCE President
09:40	**Advancing polymer circularity through supercritical co_2–water foaming technologies** Danilo Cantero Sposseti, Universidad de Valladolid - Spain
10:10	**Safety assessment of stabilized monomers** Adrian Zentel, BASF SE - Germany
10:40	**Polymer processing thermodynamics engineering** Angel Martin Martinez, Universidad de Valladolid - Spain
11:10	**Coupling kinetic and thermodynamic modeling for pressurized polymerization processes: technical realization with Predici and application to emulsion polymerization** Michael Wulkow, CIT – Germany; Kristina Zentel, University of Stuttgart – Germany
11:40	**Panel discussion and final remarks** Maria José Cocero Alonso, Chair WP on High Pressure Technology, Univ. de Valladolid - Spain Markus Busch, Chair WP on Polymer Reaction Engineering, TU Darmstadt - Germany

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EFCE Spotlight Talks

Working Party on Thermodynamics and Transport Properties

2 November 2026

14:00-16:30 CET

EFCE

Thermodynamics for Zero-to-Low Emission Technologies Mini Series: Part 2. Hydrogen

We are living in a decisive decade for climate action and the material and energy transition. Achieving zero-to-low emission technologies is no longer a distant ambition, but an immediate engineering and societal challenge. **Thermodynamics lies at the heart of this transformation**. As the science governing the conversion, transfer, and utilization of energy, it provides the fundamental framework for assessing efficiency limits, guiding technology development, and enabling informed design choices. Ultimately, thermodynamics determines how effectively emerging technologies can contribute to decarbonization.

With the **"Thermodynamics for Zero-to-Low Emission Technologies" mini-series**, we aim to highlight the essential role of applied thermodynamics in some of the key technologies shaping the material and energy transition. Following the first edition, dedicated to heat pumps, **Part 2** turns its focus to **hydrogen**.

Renewable hydrogen is expected to play an important role in the transition towards a more sustainable energy and industrial system. It can contribute to reducing greenhouse-gas emissions, particularly in sectors where direct electrification is difficult or inefficient. Moreover, renewable hydrogen is a crucial building block for sustainable chemical production, enabling the conversion of renewable carbon sources into valuable fuels, chemicals, and materials. Additionally, it may help reduce dependence on imported fossil resources; an issue whose importance has been reinforced by recent geopolitical events.

Realizing the potential of hydrogen, however, requires overcoming substantial scientific and engineering challenges, many of which are fundamentally **thermodynamic challenges**. This webinar addresses these aspects, demonstrating how understanding and accurately describing the properties and behaviour of hydrogen can support its efficient production, transport, storage, and application.

PROGRAM

14:00	**Welcome and introduction** Prof. Maria-Grazia de Angelis, Chair WP-TTP, U. Bologna - IT Prof. Christoph Held, TU Dortmund - DE Dr. Antoon ten Kate, Industrial Vice-Chair WP-TTP, ChemSpiration, Arnhem - NL Jarka Glassey, EFCE President
14:15	**From engineering to thermochemistry and back: integrating technical demands and physicochemical properties for developing hydrogen storage technologies** Dr. Riko Siewert, Prof. Karsten Müller, Inst. Technical Thermodynamics, Univ. of Rostock - DE
14:45	**How well do we know the thermophysical properties of hydrogen?** Dr.-Ing. Carsten Wedler, Inst. of Technical Thermodynamics, RWTH Aachen Univ. - DE
15:15	**Enabling LH_2 distribution through thermodynamic understanding and modelling** Audrey Hubert, ENGIE Lab CRIGEN – FR
15:45	**Thermodynamic behavior of hydrogen: the pure component and H2-CO2 mixtures. Modeling and analysis** Dr. Federica Restelli, Prof. Giorgia De Guido, Politecnico di Milano, Group on Advanced Separation Processes & Gas Processing (GASP), IT
16:15	**Discussion and conclusion** Prof. Maria-Grazia de Angelis, Chair WP-TTP, U. Bologna - IT Prof. Christoph Held, TU Dortmund - DE Dr. Antoon ten Kate, Industrial Vice-Chair WP-TTP, ChemSpiration, Arnhem – NL

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EFCE Spotlight Talks

Section on Artificial Intelligence for Chemical Engineering (AI4CE)

3 November 2026

14:00-16:00 CET

EFCE

From Pore to Plant: AI Across the Adsorption Chain

Adsorption turns up almost everywhere in chemical engineering, carbon capture, water treatment, gas drying, biopharmaceutical purification, and it is one of the few operations where a choice made at the scale of a pore ends up deciding what the plant can do. That chain, from the pore to the process, has traditionally been split across communities that rarely talk to each other, and AI is now starting to close it. This webinar follows the chain end to end. The first talk deals with molecular simulation and machine learning for nanoporous materials, where it is possible to screen candidates before any of them exists in a laboratory. The second brings the discussion to the bench, on how AI supports experimental campaigns and turns adsorption measurements into data one can actually use. The third takes it to the process side, on model-based and data-driven design of chromatographic separations. The session is not addressed only to the adsorption community: if you work on separations, on materials, or on where AI earns its place in process engineering, it was put together with you in mind. The three speakers are women, and the line-up is the first activity of the Women in AI4CE initiative.

PROGRAM

14:00	**Welcome and introduction** Idelfonso B. R. Nogueira, Chair of the Section AI for Chem. Eng., NTNU – Norway Mattia Vallerio, co-chair of the Section AI for Chem. Eng., Politecnico di Milano - Italy Maria Papathanasiou, lead of Women in AI4CE initiative, Imperial College London - UK António Gonçalves da Silva, EFCE Executive Vice-President
14:10	**Designing the material before it exists: molecular simulation and machine learning for nanoporous adsorbents** Sofia Calero, Eindhoven University of Technology - the Netherlands
14:40	**AI in the adsorption laboratory: from the experimental campaign to data one can use** Nina Salau, UFSM - Brazil
15:10	**AI and model-based design of chromatographic separation processes** Maria Papathanasiou, Imperial College London - United Kingdom
15:40	**Round-table discussion with the three speakers and conclusion** Idelfonso B. R. Nogueira, Chair of the Section AI for Chem. Eng., NTNU – Norway Mattia Vallerio, co-chair of the Section AI for Chem. Eng., Politecnico di Milano - Italy

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EFCE Spotlight Talks

Section on
Early Career Chemical Engineers

4 November 2026

14:00-16:00 CET

EFCE

Building Startups in Chemical Engineering: An Entrepreneurship Guide for Emerging Innovators

This session is for researchers and professionals who are curious about entrepreneurship, whether or not they already have a startup idea. Through founder talks and a round-table discussion, participants will gain practical insight into how ideas develop, what it takes to build and fund a company and the challenges founders face along the way.
Join us to explore, ask questions and discover whether entrepreneurship could be part of your future.

PROGRAM

14:00	**Welcome and introduction** Theodoros Papalas, Chair Section on Early Career Chemical Engineers, Univ. Birmingham – UK António Gonçalves da Silva, EFCE Executive Vice-President
14:10	**Think First. Start Smart. Start with an idea, not with money** Johanna Richter, Exe. Director Stiftung Entrepreneurship, Berlin - Germany
14:40	**Persuading with empathy for entrepreneurial ambitious chemical engineers** David Fernandez Rivas, Univ. of Twente, co-founder & CSO FlowBeams and BuBclean – The Netherlands
15:10	**Young founders roundtable: building through the ups and downs** Marie Perrin, Co-Founder and CEO of REEcover - Switzerland Giancarlo Mattiello, Co-Founder and CEO of Cría Technologies – Switzerland Omid Saghafifar, Co-Founder and CEO of Remedium Energy - United Kingdom
15:55	**Closing** Theodoros Papalas, Chair Section on Early Career Chemical Engineers, Univ. Birmingham – UK Sara Marchini, Dresden University of Technology - Germany

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