



## 24th International Congress of Chemical and Process Engineering – CHISA 2020



### Interview with Prof. Jiří Drahoš, Congress Chairman

**CHISA is a conference with a long tradition and a strong brand, but this time you give it a very new set-up and a new location. Why did you make the change, and what do you hope to achieve with it?**

Yes, CHISA 2020 will be different! There are many changes, including the location, the structure of the programme, scientific topics, their wider presentation, emphasizes, etc. In all these cases, I may assure members of the international chemical engineering community, the changes have not been sudden; we've been developing these ideas for the past four years.

We decided neither to "polish" the existing CHISA surface, nor to give a slightly deeper face lift; this is fundamental change. The primary intention was to bring a fresh and young looking CHISA that would reflect the role of chemical engineering as we enter the third decade of the 21st century. Allow me to summarise the most visible changes:

The topics in the CHISA 2020 scientific programme go well beyond what have been seen as traditional fields of chemical engineering. Traditional topics are still well-represented in the programme, but with a different distribution and focus.

CHISA 2020 will be smaller than before. This is an inevitable step in the right direction to avoid compromising on scientific quality, which is much more important to us than the congress size.

The cooperation with DeGruyter and Wiley-VCH will significantly strengthen the event; it is a **partnership for scientific excellence**. We worked together to identify many of the plenary and keynote speakers, in order to bring the best possible presenters to the congress audience.

The program structure has been streamlined: instead of the countless parallel sections and symposia that were a feature of the 'old' CHISA,

most of the time there will be no more than three parallel sessions. The audience will benefit from much less fragmented topics and not having to miss interesting lectures because of timetable overlaps. We expect that our audience will have a more diverse technical background, which will improve the quality of discussions.

CHISA 2020 moves from Clarion Congress Hotel to the university campus of Czech Technical University and University of Chemical Technology in Prague 6. For us, it means swapping a sterile and uniform congress venue for a pulsating place, full of inspirations, much more informal, flexible, showing the everyday life at the biggest Czech technical campus. It is located in Dejvice, the very friendly residential Prague district, no more than 10 minutes from the most notable historical landmarks of the city. Besides the campus CHISA 2020 is also inviting

Welcome to the first 2020 issue of the EFCE News. If you have any comments on the newsletter please get in touch.  
With kind regards

*Hermann Feise*  
EFCE President

### In this issue:

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the attendees to the Bethlehem Chapel. The place very intimately connected with the Czech medieval church reformation. The Chapel will be hosting the opening ceremony and the traditional classic music concert two days later.

## **What will be the focus subjects of the conference and how do they benefit from the restructuring?**

There are eight main congress sections, or focus subjects. As you may see, they are different in comparison with the previous CHISA congresses. You can read about them below – or you could view our YouTube video: [https://www.youtube.com/watch?v=nOh3n\\_FeJ7k&feature=youtu.be](https://www.youtube.com/watch?v=nOh3n_FeJ7k&feature=youtu.be)

### **I. We Think Global**

Low to zero emission technologies; Carbon dioxide economy – a never complete story?; Water – supply, management, reuse, purification, hygiene; Food in the focus; Sustainability as a starting point – a roadmap to higher standards

### **II. Energy First**

Energy to carbon footprint ratio – the drivers for making it invalid; Low energy cost processes; Renewable energy and energy; storage, hydrogen as a fuel; Energy self-sufficiency; Clean energy – not the produced/used one!; Photochemistry, photocatalysis, electrochemistry and photoelectrochemistry, solar cells and solar powered technologies, fuel cells

### **III. Continuous Processing and Miniaturisation, Mixing**

Continuous process design and optimization; Batch to continuous, flow chemistry; Process intensification and miniaturization; Fluid flow and microfluidics, multiphase flow; Microreactors for real-life products and scaled-up technologies; Mixing – It is always counted!

### **IV. Industry 4.0**

The digitalized Planet – The place where chemical engineering will matter. Dynamic and modular operations in the digitalized industry – the way to flexible production; 4.0 Digi systems modulations and automation; New stories on 4.0 Pharma and fine chemicals industry; Visit the Smart Plant

### **V. Advanced Functional Materials, Structures and Components**

The DPIU technology schemes – Designed, Printed, Integrated, Used; Particulate and microporous solids, low-risk advanced materials; When Nature inspires – not only the biomimetic. Catalysis and catalysts – by far not a tradition; Functional films and nanostructures,

sensors and sensing nano-objects, hierarchical nanoparticles; Polymers and polymer technologies, conductive polymers

### **VI. The Green Square: A Good Address**

No wastes technologies and zero waste plants – illusions? Production-trade-customer zero waste chains – philosophy approach vs. practical steps to achieve it; Urban mining, waste management; Microplastics and endocrine disruptors; Biotechnologies and their environment; friendly/ unfriendly face, biomass and biomass processing; Membrane processes; Air, soil and water pollution, pollution control; Green and supercritical chemistry

### **VII. The Essentials**

Educated chemical engineers – Human robots are not needed! What are the new opportunities for students and young researchers in chemical engineering? What and where to publish? Ways to make your science visible. We may start with high school students already – Chemistry Olympic Games; Chemical engineering and safety, prevention and loss control, elimination of health and environmental hazards

### **VIII. Hand in Hand**

Chemical reactors and reaction kinetics, transport phenomena; Distillation, extraction, SCF extraction, S-L separation, crystallization; Thermodynamics, phase equilibria, multiphase processes; Chemical engineering computations and modelling, molecular dynamics, ab-initio calculations, mathematical predictions, neural networks; New and improved technologies

## **Sustainability and climate change are hot topics in the chemical engineering world, today. How do you intend to include those in the conference?**

These issues are understood as the main load of the CHISA 2020 flagship. She is called **We Think Global** and all attention is now being paid to launch this ship under the new CHISA flag. But there are at least two modern ports for anchoring CHISA, **Energy First** and **The Green Square**.

## **Today, “Science for scientists” is no longer sufficient. Which offerings do you have for other stakeholders (e.g. general public, decision makers, high school students)? Academia, students and industry**

## are the traditional audience for a scientific conference – will that remain the same in the new format? Who will gain most from attending CHISA 2020?

I will give you an indirect answer. There are three main congress awards. The laureates will be members, members of the worldwide chemical engineering community, academics, industry managers, general public or even by themselves. But what is important here in terms of your questions: There is no age limit for the candidates, there are no education limits, no professional experience limits. It is “only” expected the award-winners will deliver plenary talks for the full conference audience. The main criterion will be the attractiveness of the talk. In other words, there might be a plenary award lecture delivered by a distinguished professor with decades of successful scientific career in her/his CV, and the next one, by the MSc student with only one published work. We wish to mix the “worlds” – topics, people, knowledge, expertise, visions. To achieve this many different tools and approaches will be applied. However, they have all a common denominator – informality and quality.

## After a distinguished career in science, you now hold a seat in the Czech parliament. What message will the congress send into politics, in your expectation?

As the chair of the Senate Committee on Education, Science, Culture, Human Rights

and Petitions, I will certainly present CHISA 2020 to my colleagues as a traditional event where science, education and culture meet – regardless of political, religious or cultural views of participants – since early 1960th. A significant value added of the CHISA Congresses is that they have brought tens thousands of people from the whole world into this beautiful country.

### **Prof. Ing. Jiří Drahoš, DrSc., Dr.H.C. Mult. Member of the Senate of the Parliament of the Czech Republic**

*Chair of the Committee on Education, Science, Culture, Human Rights and Petitions*

Prior to his current position in the Senate PCR, he was President of the Czech Academy of Sciences (2009-2017), its Vice-President (2005-2009) and Director of the Institute of Chemical Process Fundamentals CAS (1996-2003). Professor Drahoš graduated from the University of Chemistry and Technology Prague (1972), where he was appointed Full Professor of Chemical Engineering (2003). From 1985-1986 he worked as the Humboldt Fellow at the Hannover University (Germany). He is Visiting Professor at the University of Sao Paulo, Brazil. His principal research interests were focused on various aspects of multiphase chemical reactors. Jiří Drahoš is a Fellow of the Learned Society CR, Fellow of the Engineering Academy CR, Honorary Fellow of the Institution of Chemical Engineers UK, President of the Czech Society of Chemical Engineering. He was a member of the Executive Board of the European Federation of Chemical Engineering, and served as its President in 2006-2009. Since 2002 he has chaired the series of International Congresses of Chemical and Process Engineering CHISA in Prague.

## ECCE13 & ECAB6 - 13th European Congress of Chemical Engineering & 6th European Congress on Applied Biotechnology

**Berlin, Germany, 19-23 September 2021 (EFCE Event No. 767)**

*Engineering the Future*

**Subscribe to the ECCE13 & ECAB6 Newsletter now!**

**Website:** <http://ecce-ecab2021.eu/>

**Twitter:** #eccecab21



**ECCE  
AB21**

# Calls for Nominations

## EFCE calls for nominations in the field of Crystallization

The European Federation of Chemical Engineering (EFCE) is pleased to announce the call for nominations for the 2020 EFCE Excellence Award in Crystallization. Launched in 2007, this triennial award has been instituted to recognise a PhD thesis or paper(s) of a scientist in an early stage of his/her career, who has made excellent contributions to the understanding or the industrial application of crystallization. The previous award winners are Dr. Pedro Miguel da Silva Martins (2008), Dr. Levente L. Simon (2011), Dr. Thomas Vetter (2014), and Dr. Elena Simone (2017).

The award consists of a certificate, a travel grant not exceeding 500 euros and an invitation to attend the 21th International Symposium on Industrial Crystallization (ISIC 21) to be held in Potsdam (near Berlin), Germany, from 8 to 11 September 2020, where the award will be presented during a dedicated session. Here, the award winner will be given the opportunity to present the work.

Nominations may be submitted by any PhD supervisor at a PhD-awarding institution in an EFCE member country or by a member of an EFCE member society. The PhD thesis/paper(s) nominated must address a topic relevant to the field of crystallization. Only PhD theses or papers published between 1 January 2017 and 31 December 2019 are eligible for nomination.

A nominated PhD thesis must have been completed and published and the PhD degree examined and awarded.

**Closing date for nominations: 15 April 2020**

For further information about the nomination procedure, eligibility, supporting documentation, and the online submission form, please visit the EFCE website at <http://www.efce.info/ExcellenceAwardCrystallization.html>

**Reminder:  
Carl Wagner  
Medal of  
Excellence in  
Electrochemical  
Engineering**



Further information about the nomination procedure, eligibility, supporting documentation, and submission can be obtained from the EFCE website at:

<https://efce.info/Carl+Wagner+Medal>

**Deadline for submission of nominations:  
20 February 2020**

*The Award is generously sponsored by Covestro.*

## A multi-layered view of chemical and biochemical engineering

**Rafiqul Gani et al *Chemical Engineering Research and Design*,  
Volume 155, March 2020, Pages 133-145**

The paper available for free on ScienceDirect at:

<https://www.sciencedirect.com/science/article/abs/pii/S0263876220300101>

### Summary:

The contents of this article are based on the results of discussions the corresponding author has had since 2015 with the co-authors, who are members of academia and industry in Europe, on the scope and significance of chemical and biochemical engineering as a discipline. The result is a multi-layered view of chemical and biochemical engineering where the inner-layer deals with the fundamental principles and their application; the middle-layer deals with consolidation and expansion of the principles through a combination of science and engineering, leading to the development of sustainable technologies; and the outer-layer deals with integration of knowledge and collaboration with other disciplines to achieve a more sustainable society. Through this multi-layered view several important issues with respect to education, research and practice are highlighted together with current and future challenges and opportunities.

## Who's Who

### The Working Party on Mechanics of Particulate Solids welcomes its new Chair, Prof. Diego Barletta

On 1 January 2020, Prof. Diego Barletta succeeded Prof. Alvaro Ramirez-Gomez in the position of Chair of the Working Party on Mechanics of Particulate Solids.

Prof. Diego Barletta is Associate Professor of Chemical Engineering at the Department of Industrial Engineering of the University of Salerno, Italy, since March 2018. At the same University he previously was Assistant Professor from 2005 to 2018. Since 2012 he is a member of the Working Party, and since 2018 a member of the EFCE Energy Section.

His research interests include powder flow in storage and handling systems, the effect of process conditions on powder flow properties, the flowability of biomass particulate solids, selective laser sintering of powders, fluidization of cohesive powders and process systems

design of plants for the production of renewable energy and green chemicals. He is author of more than 70 papers in refereed international journals and books on chemical engineering and particle technology and of more than 80 papers presented at international conferences.

More information about the Working Party activities is available at: [https://efce.info/WP\\_MPS.html](https://efce.info/WP_MPS.html)

### News from the Working Party on Loss Prevention and Safety Promotion in the Process Industries

**Prof. Bruno Fabiano** (DICCA University of Genoa, Italy) was re-elected as the Chair of the Working Party for another three-year period 2019-2022. **Prof. Ales Bernatik** (VSB Technical University of Ostrava, Czech Republic) was elected as the Working Party Secretary for the same period succeeding Dr. Gary Pilkington (Gexcon Ltd., UK).

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## Events organised by or on behalf of EFCE in 2020/21

An extended list of events is available at <http://www.efce.info/events.html>

### European Symposium on Computer Aided Process Engineering – ESCAPE-30

*Milan, Italy, 24-27 May 2020  
(EFCE Event No. 764)*

ESCAPE-30 is organised by the Italian EFCE Member Society AIDIC in collaboration with the EFCE Working Party on Computer Aided Process Engineering. The Symposium attracts scientists from many different countries providing a platform for discussing the latest progress in the field of Computer Aided Process Engineering, following both a scientific and technological interdisciplinary approach.

**Topics:** Modelling and Simulation; Synthesis and Design; Process control and operations; CAPE in Sustainable Energy Applications; Bioresources, Bioprocesses and Biomedical Systems; Internet of Things; Concepts, Methods and Tools;

Education in CAPE and Knowledge Transfer.

**Plenary speakers:** Dr. Francesco Rossi; Ana Paula Barbosa-Póvoa.

**Register NOW!**

**Website:** <http://www.escape30.it>

### 14th Mediterranean Congress of Chemical Engineering

*Barcelona, Spain, 2-5 June 2020  
(EFCE Event No. 768)*

The event is organised by SEQUI (Sociedad Espanola de Quimica Industrial e Ingenieria Quimica) in the frame of **EXPOQUIMIA**. The Congress will focus on the dissemination of the most recent advances and results related to Chemical Engineering Science.

**Topics:** Separation Technologies; Chemical

Reactors; Processes Systems Engineering;  
Sustainable Development and Environmental  
Engineering; Food and Biochemical Engineering;  
Process and Product Engineering

**Plenary speakers:** Renato Rota, Politecnico di Milano; Jorge Ruiz Royo, CEO Arandipur SL; Wayne Sim, 3esi and Aucerna.

**Register NOW!**

**Deadline for early-bird registration:  
16 March 2020**

**Website:** <https://www.mecce.org/>

## **12th European Symposium on Electrochemical Engineering – ESEE 2020**

**Leeuwarden, The Netherlands,  
14-18 June 2020  
(EFCE Event No. 766)**

The 12th European Symposium on Electrochemical Engineering - ESEE 2020 is organised by the EFCE Working Party on Electrochemical Engineering in cooperation with Wetsus.

The scope of ESEE 2020 is "*Electrochemistry for electrification and energy transition toward a sustainable future*", which captures the aim of the organisers to showcase scientific advances in physical, chemical and biochemical routes towards a future where electrochemical engineering is part of a sustainable society, closing resource cycles and contributing to zero-pollution mobility and manufacturing.

**Topics:** Electrocatalysis and electrochemical technologies; Safe water and air; Corrosion science for durable materials; Water electrolysis and fuel cells; Novel energy storage devices, batteries, and electrochemical capacitors; Bioelectrochemistry for energy conversion and resource recovery; Green capture and conversion of CO<sub>2</sub>; Electrochemical recovery of raw materials; Advanced membranes and electrodes for selective ion removal; General session.

**Invited speakers:** Matthias Wessling; Menachem Elimelech; Martin Z Bazant; Elif Karatay; Geoff Kelsall; Matthew Suss; Manuel Andres Rodrigo; Xiao Su.

**Register NOW!**

**Deadline for early-bird registration:  
31 March 2020**

**Website:** <http://www.electrochemical-engineering.eu/2020/>

## **2nd International Conference on Sustainable Production and Consumption – SPC20 Edinburgh, United Kingdom, 24–25 June 2020 (EFCE Event No. 771)**

The conference is organised by IChemE in collaboration with the EFCE Sustainability Section and the journal Sustainable Production and Consumption published by Elsevier on behalf of IChemE.

The conference will provide a platform for high-quality papers on sustainable production and consumption, aiming to explore multidimensional interactions between technology, the environment, economy, society and policy. To promote the multidisciplinary efforts needed in addressing the challenges of sustainable production and consumption, papers are invited from engineers, natural and social scientists, as well as the humanities. Contributions at the interface of these disciplines are particularly encouraged.

**Topics:** Circular economy; Ecosystem services; Energy, food, water and waste nexus; Life cycle sustainability assessment and management; Sustainable lifestyles and consumer engagement; Sustainable technologies, products and services; Sustainability indicators, multi-criteria decision analysis and systems optimisation; Sustainable development policy.

**Invited speakers:** Professor Dabo Guan, Tsinghua University, China; Dr. Sarah McLaren, New Zealand Life Cycle Management Centre (NZLCM Centre).

**Register NOW!**

**Website:** <http://www.icheme.org/spc20>

## **XXIV International Conference on Chemical Reactors – CHEMREACTOR-24 Milan, Italy, 30 August – 4 September 2020 (EFCE Event No. 769)**

The XXIV International Conference on Chemical Reactors – CHEMREACTOR-24 is organised by the Boreskov Institute of Catalysis, Russia jointly with the world famous Politecnico di Milano, Italy.

**Main topics:** Advances in Chemical

Reactor Fundamentals; Chemical Reaction Engineering and Reactor Design – Novel Experimental Approaches, Modeling, Scale-Up and Optimisation; Chemical Reactors and Technologies for Targeted Applications; Advanced Processing of Conventional and Unconventional Hydrocarbon Feedstocks.

**Plenary speakers:** Prof. Guy Marin; Prof. Annemie Bogaerts; Prof. Ib Chorkendorff; Prof. Fausto Gallucci; Prof. Freek Kapteijn; Dr. Carlo Perego.

**Register NOW!**

**Deadline for early-bird registration:  
10 March 2020**

**Website:** <http://conf.nsc.ru/CR-24/en/>

### **1st International Symposium on Industrial Crystallization-ISIC 21 Potsdam, Germany, 8–11 September 2020 (EFCE Event No. 751)**

The symposium is organised under the auspices of the EFCE's Working Party on Crystallization and, has become the premier international conference in the field of industrial crystallization.

The 21st ISIC 2020 provides a meeting and a discussion forum for scientists and engineers from academia and industry as well as suppliers of crystallization and related analytical equipment. The conference program will include lectures and poster sessions. A concomitant exhibition and introductory tutorials will complete the event.

**Main Topics:** Fundamentals of crystallization; Crystallization and precipitation in fine chemical, specialty & life-science industries; Developments in large scale industrial crystallization; Contributions of crystallization to sustainability; Integrated process design: Crystallization in the industrial process chain.

**Plenary and Evening speakers:** Prof. Beatrice Biscans, France; Prof. Richard Braatz, USA; Prof. Helmut Cölfen, Germany; Prof. Juanma Garcia-Ruiz, Spain; Dr. Daniel Green, USA; Dipl.-Ing. Christian Melches, Germany.

**The call for papers is open.  
Deadline for abstract submission  
extended to 14 February 2020.**

**Website:** [https://dechema.de/ISIC\\_21.html](https://dechema.de/ISIC_21.html)

### **ECCE13 & ECAB6 - 13th European Congress of Chemical Engineering & 6th European Congress on Applied Biotechnology**

**Berlin, Germany, 19-23 September 2021 (EFCE Event No. 767)**

#### **Engineering the Future**

Chemical engineering, biotechnology and bioprocessing are the key to providing innovative solutions for food supply, mobility, energy, health and well-being while striving for a sustainable economy.

Features of ECCE 13 & ECAB 6:

- The highlight event for the European chemical engineering and biotechnology community
- Cross-linking disciplines and organisations to span the bridge from R&D to the industrial practice
- High-profile international keynote and plenary speakers
- Special offerings for students and young scientists
- Industry exhibition and plenty of networking opportunities

#### **Topics:**

##### *CONTROLLING COMPLEXITY*

- Modelling, Measurement & Process Control (digitalisation, AI, process modelling, molecular modelling, automation, smart (bio)sensors, process control, CAPE/PSE, plant safety, containments, ...)

##### *ENGINEERING PROCESSES, PRODUCTS*

- Chemical & Bioprocesses (bioreactors, integrated continuous bio-manufacturing, single-use reactors, scale-up, process intensification, particle technology, fluid process engineering, multiphase systems, process and plant design, modular production, materials for 3D printing, product design, new materials)
- Separation technologies/ downstream processing (membranes, fluid separations, adsorption, crystallization, chromatography)
- Chemical and Biocatalysis (catalyst characterization, heterogenous catalysis, enzyme technology, protein engineering, cell-free systems, chemo-enzymatic

syntheses, microbial fuel cells & electrosyntheses)

#### AND LIFE

- Biological Production Systems (systems biology, metabolic engineering, synthetic biology, cell culture technology, biofilms)

#### FINDING NEW ROUTES

- Sustainable production, low carbon & circular (bio)economy, clean water and energy (H2 Economy, H2 technologies, C1 feedstocks, plant/algae biotechnology, food production, biorefineries, recycling/waste utilisation, bio-leaching, electrochemical processes, process electrification, power-to-x, (waste)water technologies, bio-based products (fuels, polymers, chemicals)

#### PREPARING FOR THE FUTURE

- Novel ways of education and training (Curriculum Development & Transformation, e-Learning & e-Assessment, Teaching Engineering, Design, Safety & Sustainability, CHARMING)

The call for papers will open in August 2020.

**Website:** <http://ecce-ecab2021.eu/>

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