# Trustees Annual Report 2020

**European Federation of Chemical Engineering**

**Europäische Föderation für Chemie-Ingenieur-Wesen**

**Fédération Européenne de Génie Chimique**

EFCE

# Contents

# The European Federation of

## 1. Serve the European Chemical Engineering Community

By providing a platform for views and opinions and identifying opportunities for its voice to be heard

## 2. Support Chemical Engineers within EFCE Member Societies

- Working Parties and Sections
- Conferences and Seminars
- Newsletters, Website and e-bulletins

## 3. Support the Education and Training of Chemical Engineers within Europe

- Active Education Working Party
- EFCE Journals
- Input Into Development of Curricula
- Training

# Chemical Engineering will...

## 4. Influence Decision Makers and Opinion Formers on Matters of Importance to Chemical Engineers

- By Helping to Shape European Policy
- Promoting Public Understanding of Science
- Contributing to European R&D Programmes
- Fostering Academic/Industry Links

## 5. Initiate Collaborations in Support of Common Goals and for the Advancement of Science and Technology

- Proactive Horizon Scanning and Topic Spotting
- Bringing People Together via Respected European Technical Networks

**EFCE will help European society to meet its needs through highlighting the role of Chemical Engineering in delivering sustainable processes and products.**

# Trustees 2020

**EFCE President**
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# Public Benefit Statement

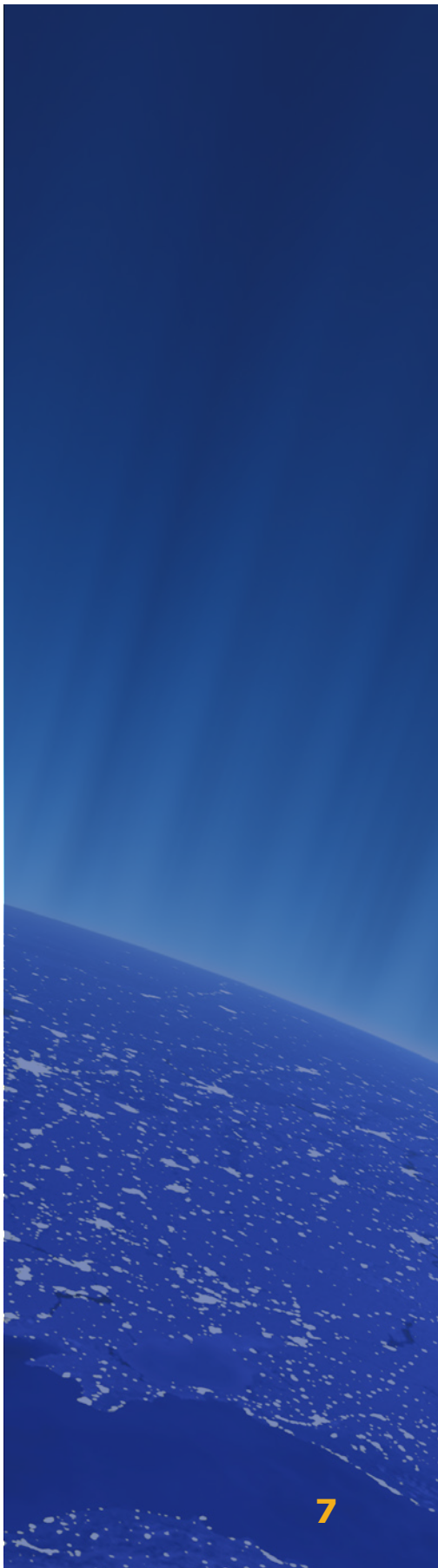
The charity trustees confirm that they have complied with their duty to have due regard to the guidance on public benefit published by the commission in exercising their powers or duties.

# Objectives and activities

The objectives of the European Federation of Chemical Engineering, as stated in its Constitution, are "for the benefit of the public to promote co-operation in Europe and elsewhere between non-profit making professional scientific and technical societies which share amongst their aims the general advancement of science and education of the public in chemical engineering and the encouragement of the development of chemical engineering."

By enabling like-minded societies in Europe to co-operate, EFCE encourages progress in chemical engineering by facilitating the exchange of information and opinion in meetings, congresses and journals, support leading researchers and emerging talent through medals and prizes, and enabling industrialists and academics from across Europe to discuss topics of common concern.

EFCE is a Charitable Incorporated Organisation with voting members other than its charity trustees. It has an 'Association' model constitution, dated 9 December 2014.



# **Key** achievements during 2020

The European Federation of Chemical Engineering (EFCE) has promoted cooperation in Europe and elsewhere between non-profit making professional scientific and technical societies since 1953. Even during the Cold War, personal contacts, travel and scientific meetings have been part of our activities. Measures taken because of the COVID-19 pandemic have made this impossible for most of 2020, a situation unheard of in Europe for more than 70 years.

Answering the challenges posed by the pandemic and following a path which had been explored already in 2018, EFCE has moved its activities online. Meetings and workshops hosted by EFCE have been run as virtual events from the start of the contact restrictions in early 2020. Large scientific events were initially postponed and from autumn 2020 software solutions and the willingness to use them enabled us to run even large events with several hundreds of paying participants online. EFCE now has a conference engine, which not only allows distributed work for preparing conferences (paper submission, reviewing, registration etc) but can also run and document the conference.

Responding to the need for scientific exchange while it was not possible to hold face to face conferences, EFCE started the EFCE Spotlight Talks, a series of connected webinars organized by the EFCE working parties and sections. The first series in November and December 2020 ran over a fortnight and reached almost 2000 participants. The 3rd European Forum on New Technologies – Chemical Engineering in the Plant of the Future, moved to be a virtual event, attracted over 900 participants. However, the EFCE Forum focussing on early career engineers, which had been planned for August 2020, had to be postponed to 2021.

The emergency measures taken by governments in Europe and around the world to address the COVID-19 pandemic will affect how EFCE operates beyond 2020, particularly in the organization of scientific events that are central to EFCE's activity. The joint European Congress of Chemical Engineering and the European Congress of Applied Biotechnology, which was scheduled for September 2021 in Berlin, will be held virtually due to the uncertainty about travel restrictions and vaccination progress. The tight cooperation between EFCE and ESBES for this conference series, which was formalized in 2018, has proven to be a valuable asset in difficult times.

We expect many effects of the pandemic to be long-lasting, driving a step change towards digitalisation and new ways of organising meetings and new forms of scientific exchange. The investments in digital capabilities made in 2019 have laid the foundations to supporting this change, and EFCE will further improve its digital presence to build on this. We will now explore new formats which can supplement the existing forms of collaboration and discussion.

In 2014 EFCE was registered as a Charitable Incorporated Organisation (CIO) to help it foster the general advancement of science and education of the public in chemical engineering. In addition, we support the development of chemical engineering in collaboration with our member societies. EFCE encourages progress in chemical engineering through facilitating the exchange of information and opinion in meetings, congresses and journals, supporting leading researchers and emerging talent through medals and prizes, and enabling industrialists and academics from across Europe to discuss topics of common concern. In 2020, much of this meant regrouping of efforts and reshaping of activities. Thus, we awarded fewer prizes and held fewer events than in previous years. Nevertheless, activities did continue and even those which were postponed will happen, mostly in 2021 and still digitally.

# Working Parties and Sections

EFCE has 20 Working Parties and four Sections, whose activities span organising conferences, promoting and judging awards, and running summer courses for PhD students. The Working Parties and Sections (WP&S) are at the heart of EFCE's activities. They involve around 1000 volunteers from across Europe who are experts in their fields. Of these, 18% are industrial delegates.

## Working Parties

**Agglomeration**
Chair: Prof. S. HEINRICH, Hamburg/DE
stefan.heinrich@tuhh.de

**Characterisation of Particulate Systems**
Chair: Prof. Martin MORGENEYER, Lyon/FR
martin.morgeneyer@utc.fr

**Chemical Reaction Engineering**
Chair: Prof. Kai-Olaf HINRICHSEN, Garching/DE
hinrichsen@tum.de

**Comminution and Classification**
Chair: Prof. Arno KWADE, Braunschweig/DE
a.kwade@tu-bs.de

**Computer Aided Process Engineering**
Chair: Prof. Flavio MANENTI, Milano/IT
flavio.manenti@polimi.it

**Crystallization**
Chair: Prof. Marco MAZZOTTI, Zurich/CH
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**Drying**
Chair: Prof. Angélique LÉONARD, Liège/BE
a.leonard@ulg.ac.be

**Education**
Chair: Prof. Eric SCHAER, Nancy/FR
eric.schaer@univ-lorraine.fr

**Electrochemical Engineering**
Chair: Prof. Karel BOUZEK, Prague/CZ
karel.bouzek@vscht.cz

**Fluid Separations**
Chair: Prof. Harry KOOIJMAN, Amsterdam/NL
Harry.Kooijman@shell.com

Potsdam/USA
kooijman@clarkson.edu

**High Pressure Technology**
Chair: Prof. Eberhard SCHLÜCKER, Erlangen/DE
sl@ipat.uni-erlangen.de

**Loss Prevention and Safety Promotion**
Chair: Prof. Bruno FABIANO, Genoa/IT
brown@unige.it

**Mechanics of Particulate Solids**
Chair: Prof. Diego BARLETTA, Fisciano (SA), IT
dbarletta@unisa.it

**Mixing**
Chair: Dr. Joëlle AUBIN, Toulouse/FR
joelle.aubin@ensiacet.fr

**Multiphase Fluid Flow**
Chair: Prof. Michael SCHLÜTER, Hamburg/DE
michael.schlueter@tuhh.de

**Polymer Reaction Engineering**
Chair: Prof. Markus BUSCH, Darmstadt/DE
markus.busch@pre.tu-darmstadt.de

**Process Intensification**
Chair: Tom VAN GERVEN, Leuven/BE
tom.vangerven@kuleuven.be

**Quality by Design**
Chair: Prof. Christoph HERWIG, Wien/AT
christoph.herwig@tuwien.ac.at

**Static Electricity in Industry**
Chair: Prof. Petro LLOVERA SEGOVIA, Paterna/ES
pedro.llovera@ite.es

**Thermodynamics and Transport Properties**
Chair: Dr. Jean-Charles DE HEMPTINNE Rueil Malmaison/FR
jean-charles.de-hemptinne@ifpen.fr

# Sections

**Energy**
Co-chairs: Prof. Fabrizio BEZZO, Padova/IT
fabrizio.bezzo@unipd.it

Prof. Francois MARÉCHAL, Sion/CH
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**Food**
Chair: Dr.-Ing. Volker HEINZ, Quakenbrueck/DE
v.heinz@dil-ev.de

**Membrane Engineering**
Chair: Prof. Enrico DRIOLI, Arcavacata di Rende/IT
e.drioli@itm.cnr.it

**Product Design and Engineering**
Chair: Dr. Stefan KAUFMANN, Hamburg/DE
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Working Parties and Sections conduct their business throughout the year, and every group has at least one meeting per year. Since mid-March 2020 all planned business meetings of the Working Parties and Sections were held online.

In 2020, Working Parties and Sections were involved in a broad range of online events and webinar series as well as two online conferences. On top of that, Working Parties and Sections started organising different congresses, symposia or workshops on their specific area of activity. Due to the COVID-19 outbreak, most events were either cancelled or moved to 2021. These include the 21st International Symposium on Crystallization (ISIC), the 12th European Symposium on Electrochemical Engineering (ESEE), and the XXIV International Conference on Chemical Reactors (CHEMREACTOR).

# Events of 2020

- **ESCAPE-30 – 30th European Symposium on Computer Aided Process Engineering,** online, *WP Computer Aided Process Engineering*
- **CHISA De Gruyter – EFCE Web-Seminar series,** online, 3 September and 26 November
- **3rd European Forum on New Technologies: Chemical Engineering in the Plant of the Future,** online, 4 and 11 September 2020


- **Web-Seminar Series on various aspects of crystallization 2020,** online, 9, 10 and 11 September 2020, *WP Crystallization*
- **EFCE WP QbD Web-Seminar Series 2020,** online, 24 September, 6 October and 29 October 2020, *WP Quality by Design*

- **Online Strategy Meeting: Future Directions in Product Design,** online, 26-27 October 2020 (EFCE Event No.779), *Section Product Design and Engineering*
- **Virtual MeCCE 2020 – virtual 14th Mediterranean Congress of Chemical Engineering,** online, 16-20 November 2020 (EFCE Event No. 768)
- **1st Series of EFCE Spotlight Talks**, 3 November – 4 December 2020, *11 Working Parties and Sections involved*
    - **Electrostatics in industry: risks, measurements and materials**, *WP on Static Electricity in industry*
    - **Engineering Loss Prevention and Safety 4.0**, *WP on Loss Prevention and Safety Promotion in the Process Industries*
    - **CCU(vs.)S**: How chemical engineering can shed light on challenges and opportunities of carbon capture and storage (CCS) and carbon capture and utilization (CCU) in a climate positive society? *Section on Energy*
    - **Electrification of the chemical industry**, *WP on Chemical Reaction* Engineering
    - **Handling of particulate solids**, *WP on Mechanics of Particulate Solids*
    - **Chemical engineering education in COVID-19 era** – experiences in ensuring distance learning achieves the necessary learning outcomes ? *WP on Education*
    - **Process integration for the energy transition in industry**, *Section on Energy*
    - **Multiscale Mixing in Multiphase Flows**, *WP on Mixing* and *WP on Multiphase Fluid Flow*
    - **Lifelong Learning of Process Intensification for an Innovative industry**, *WP on Process intensification*
    - **Thermodynamic tools for $CO_2$ capture**, *WP on Thermodynamics and Transport Properties*
    - **Quality by Design tools for the Optimization of (Bio-) Pharma Processes System Modelling, Machine Learning and Digital Twins**, *WP on Quality by Design*

# Awards

## Excellence Awards

EFCE Excellence Awards recognise PhD theses or publications of young researchers published in preceding years which demonstrate the most outstanding contribution to research or the practice in the scientific fields of the EFCE Working Parties and Sections.

Awards typically comprise a certificate, a cash award of €1,500 and a €500 travel grant to attend the meeting at which the award will be presented.

In 2020, EFCE gave the following awards:

**Dr. Dinesh Krishnamoorthy**

2020 EFCE Excellence Award in Recognition of an outstanding PhD Thesis on Computer Aided Process Engineering

**Dr. Emmanuel Mousset**

2020 Carl Wagner Medal of Excellence in Electrochemical Engineering (presentation postponed to June 2021)

**Dr. Ashwin Kumar Rajagopalan**

2020 EFCE Excellence Award in Crystallization (presentation postponed to September 2021)

## Other Awards

- The Working Party on Computer Aided Process Engineering presented its **Long Term Achievements (LTA)** award to Prof. Lorenz Biegler, Covestro University Professor in the Chemical Engineering Department at Carnegie Mellon University, Pittsburgh, PA, USA.
- The Working Party on Thermodynamics and Transport Properties has awarded its **Distinguished Lecture** to Professor Gabriele Sadowski, TU Dortmund, Germany, in recognition of her internationally recognised work related to advances of the statistical associating fluid theory (SAFT). The Award ceremony and Lecture at the 31 European Symposium on Applied Thermodynamics (ESAT) are postponed to July 2021.

Gabriele Sadowski

# 2021 and Beyond

## External Engagement

**A-SPIRE**: EFCE is an Associate Member of A-SPIRE which is a partnership between ten industry groups and the European Commission. The groups represent cement, ceramics, chemicals, engineering, minerals and ores, non-ferrous metals, pulp and paper, refining, steel and water sectors. The A-SPIRE partnership has recently published a new roadmap **Processes4Planets - Transforming the European Process Industry for a Sustainable Society**. The EFCE, through its Working Parties and Sections, had input to this document during the consultation process. The broad priorities are digitalisation, reusing waste, efficiency and identifying disruptive new technologies. The roadmap will form the basis of calls and new partnerships for Horizon Europe. The Horizon Europe framework has been approved and new calls will be issued from summer 2021.

**SusChem**: SusChem is the European Platform for Sustainable Chemistry and the EFCE Scientific VP is a member of its Board. EFCE has had input to SusChem activities through Working Party and Section members. SusChem has members from most major European chemicals companies and close collaboration with several Directorates of the European Commission including RTD and GROW to influence policies and funding priorities. SusChem maintains a number of National Technology Platforms. The SusChem Strategic Research and Innovation Agenda (SIRA) published in 2019 has the following priorities: advanced materials, advanced process technologies, enabling digital technologies and horizontal topics. SusChem published its 'Sustainable Plastics Strategy' in December 2020. An impact focused paper on digital technologies in line with green deal priorities is planned (building on documents published by others). SusChem groups are also involved in a number of European batteries initiatives.

## Chemical Engineering Skills Audit

The Scientific VP has been surveying whether the ecosystem for developing chemical engineers in Europe is optimal and consistent. By bringing together some statistics of age profiles and student to staff ratios the aim is to build a picture of best practice and to help national member societies and universities argue for more academic recruitment to maintain a strong discipline basis for chemical engineering. There are figures for many, but not all countries. A final report will be produced before the end of 2021, published on the EFCE website and we will seek to promulgate the results through the Member Societies and in newsletters.

## Future conferences

Plans are well under way for ECCE/ECAB which will be held virtually in Sept 2021. ECCE/ECAB 2023 will now be held in Berlin and ECCE/ECAB 2025 in Lisbon. CHISA, originally planned for August 2020, was moved to a virtual meeting in March 2021. The 3rd European Forum on New Technologies on 'Chemical Engineering in the Plant of the Future' took place online on 4 September and 11 September 2020. The EFCE organised two sets of Spotlight Talks by its Working Parties and Sections, eleven in November/December 2020 and five to be held in May 2021. Registrants were able to participate in any of the events encouraging cross fertilisation between members of Working Groups and Sections.

# **Administrative** Report

2020 was the sixth year of EFCE as a Charitable Incorporated Organisation. The planned Executive Board meetings were not held in person due to COVID-19 restrictions and were replaced by online events, held in April and August. While this allowed the boards to meet as planned and with good participation, we regret that the new members of the Board, elected in September 2019, did not have the opportunity to meet in person with their colleagues.

The Management Committee met monthly and ahead of the Executive Board meetings via videoconference.

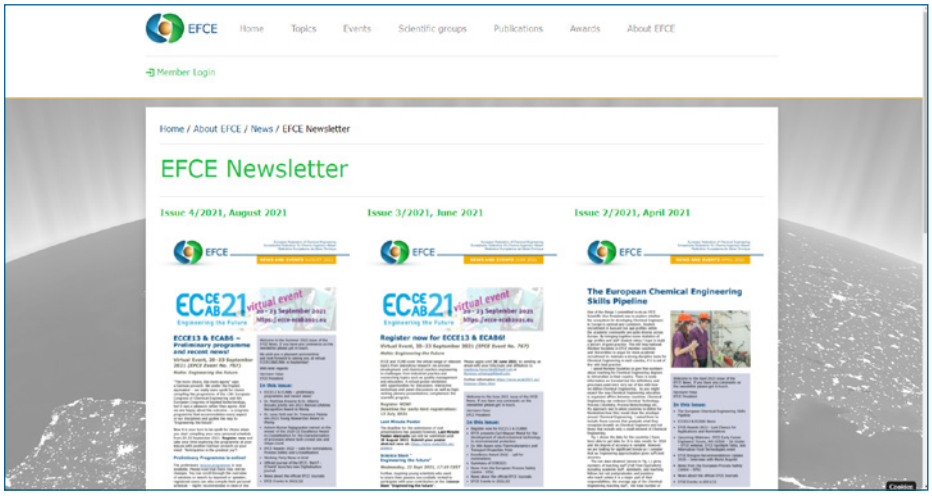
During the year, invoicing, forecasting and payment of expenses were closely managed in order to keep the EFCE accounts under control. Details about the economic and financial performance of the CIO are provided later in the financial report.

As mentioned earlier, EFCE online presence in 2020 was quite strong and was essential to keep close contacts with the scientific and chemical engineering community.

EFCE publicises its activities through its e-newsletter and five issues were published in 2020 (**http://efce.info/EFCE_Newsletter.html**). In addition, pdf versions are published on EFCE's social media pages and press releases (**https://efce.info/News.html**) highlight other news, mainly relating to the various EFCE awards.

EFCE's social media pages can be found at:

- EFCE LinkedIn Group: **http://bit.ly/EFCE_LinkedIn**
- Twitter: **https://twitter.com/@EFCE_Comms**
- Facebook: **https://www.facebook.com/theEFCE**
- YouTube: **https://www.youtube.com/channel/UCxuvfbb5ST3DMHLAwZ6326w**



# Changes to the **Board of Trustees**

All three serving officers were re-elected to a second term in 2019 and started their second term in January 2020. They are Dr. Hermann J. Feise, Giorgio Veronesi as Executive Vice-President, and Professor David Bogle as Scientific Vice-President.

The following trustees were elected in 2019 and took their seats at the start of 2020: Adisa Azapagic (United Kingdom), Elisabetta Brunazzi (Italy), Michael Considine (United Kingdom), Ferenc Friedler (Hungary), Antoon ten Kate (The Netherlands), Petr Kluson (Czech Republic), Alexis Pey Torruella (Spain), Patrick Piccione (Switzerland), Álvaro Ramirez-Gomez (Spain), Eric Schaer (France), Maurizio Rovaglio (Italy), and Michael Wilk (Germany). They join the appointed trustees Willi Meier (DECHEMA), François Nicol (SFGP), and Jon Prichard (IChemE), who represent the three EFCE General Secretariats.

During the course of 2020 two further trustees were co-opted: Hilke Lorenz (Switzerland), co-opted in April 2020, and Thaddeus Anim-Somuah, co-opted in August 2020.

**Hermann Feise**
**President**

**David Bogle**
**Scientific Vice-President**

**Giorgio Veronesi**
**Executive Vice-President**

# Financial Report

from the period of 1 January 2020 to 31 December 2020

| | 2020<br>Unrestricted fund | 2019<br>Total funds |
|---|---|---|
| **INCOME FROM Charitable activities** | | |
| Charitable activities | 36,527 | 116,551 |
| Investment income | - | 40 |
| **CHARITABLE ACTIVITIES TOTAL** | **36,527** | **116,591** |
| **EXPENDITURE ON Charitable activities** | | |
| Resources expended | 198 | 655 |
| Charitable activities | 39,482 | 112,324 |
| Other | 2,396 | 2,498 |
| **TOTAL** | **42,076** | **115,477** |
| **NET INCOME (EXPENDITURE)** | **(5,549)** | **1,114** |
| **RECONCILIATION OF FUNDS** | | |
| **Total funds brought forward** | 105,715 | 104,601 |
| **TOTAL FUNDS CARRIED FORWARD** | **100,166** | **105,715** |

| CURRENT ASSETS | 2020<br>Unrestricted fund | 2019<br>Total funds |
|---|---|---|
| Debtors | 6,166 | 18,815 |
| Cash at bank | 133,400 | 135,261 |
| TOTAL | **139,566** | **154,076** |
| **CREDITORS** | | |
| Amounts falling due within one year | (39,400) | (48,361) |
| **NET CURRENT ASSETS** | **100,166** | **105,715** |
| **TOTAL ASSETS LESS CURRENT LIABILITIES** | **100,166** | **105,715** |
| **NET ASSETS** | **100,166** | **105,715** |
| **FUNDS** | | |
| Unrestricted funds | 100,166 | 105,715 |
| **TOTAL FUNDS** | **100,166** | **105,715** |

This financial report is an extract of the Unaudited Financial Statements for the year ended 31 December 2020, which have been independently examined by Magma Audit LLP, Rugby, UK. The full report is available on the EFCE website.

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