

Trustees Annual Report for 2015

European Federation of Chemical Engineering



EFCE

Trustees in 2016/17

Rafiqul Gani (EFCE President)
Jean-Marc Le Lann (Scientific Vice-President)
Michael Considine (Executive Vice-President)
Bülent Atamer
Jerzy Baldyga
Wridzer Bakker
David John Brown (until 27 August '16)
Jean-Pierre DalPont
Jiří Drahoš
Hermann J. Feise
Claudia Flavell-While (from 27 August '16)
Flavio Manenti
Willi Meier
Carlos Manuel Negro Alvarez
François Nicol
Bent Sarup
Andreas Schreiner
Eva Sørensen
Giorgio Veronesi
Bruno Zelić

Trustees in 2014/15

Rafiqul Gani (EFCE President)
Jean-Marc Le Lann (Scientific Vice-President)
Michael Considine (Executive Vice-President)
Bülent Atamer
Wridzer Bakker
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David John Brown
Jean-Pierre DalPont
Jiří Drahoš
Hermann J. Feise
Jose-Angel Irabien-Gulias
Boženna Kawalec-Pietrenko
Konstantinos Kremalis
Robert Low
Willi Meier
François Nicol
Andreas Schreiner
Eva Sørensen
Philippe A. Tanguy
Gabriel Wild



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.

New Board

Board elections took place during the 2015 General Assembly of EFCE. The current President, Professor Rafiqul Gani, Denmark, was re-elected for a further two-year term starting 1 January 2016, as were the two Vice Presidents, Professor Jean-Marc Le Lann, France; and Professor Michael Considine, United Kingdom.

The newly-elected members of the EFCE Executive Board, effective from 1 January 2016 for a two-year term, are: Dr. Wridzer Bakker, The Netherlands; Prof. Jerzy Baldyga, Poland; Prof. Ing. Jiří Drahoš, Czech Republic; Dr.-Ing. Hermann J. Feise, Germany; Prof. Flavio Manenti, Italy; Prof. Carlos Manuel Negro Alvarez, Spain; Mr. François Nicol, France; Dr. Bent Sarup, Denmark; Prof. Eva Sørensen, United Kingdom; Dr.-Ing. Andreas Schreiner, Switzerland; Mr. Giorgio Veronesi, Italy and Mr. Bruno Zelić, Croatia. In May 2016, Mr. Bülent Atamer from Turkey joined the Executive Board as a co-opted charity trustee.

Key Achievements and Performance during 2015

President's report

2015 was a new chapter for EFCE. The Federation began its first year as a formally registered entity. The process of establishing EFCE as a registered Charitable Incorporated Organisation was completed in December 2014, after all the legal and administrative requirements for the transition were satisfied. The year also saw the election of a new set of trustees, who will serve for a two-year period starting 1 January 2016.

There was also change in terms of membership and international relations. The Russian Engineering Academy (Chemical Technologies Section) and the Ukrainian Association of Chemical Engineering had fallen inactive for a prolonged period and were removed from membership. At the same time, member organisations from Mexico, China and Thailand have joined EFCE as Institutional Members in October 2015.

In terms of scientific activities, it was a busy year. During 2015, EFCE and its working parties organised seven conferences which between them attracted some 4000 visitors. Particular highlights in the event calendar were ECCE10/ECAB3/EPIC5, which was held in Nice, France, in September 2015. A very successful PSE2015/ESCAPE25 conference was held in Copenhagen in early June, organised by the Danish member society on behalf of EFCE's Computer-Aided Process Engineering Working Party. ICOSSE, a conference on sustainability jointly organised by EFCE's Sustainability Section, the University of Pannonia, Hungary, and the American Institute of Chemical Engineers, took place in the Hungarian town of Balatonfüred in May. Also, the EFCE WPs and Sections organised three summer schools for students in the areas of Electrochemical Engineering, Polymer Reaction Engineering and Food Engineering.

EFCE presented seven Excellence Awards in different topics in 2015, and three Student Mobility Awards. In addition, Prof Jiří J. Klemeš received a Lifetime Achievement Award, while the Jaques Villermaux Medal was presented to Prof Joachim Werther for his services and achievements to the Chemical Engineering community. Finally, EFCE hosted the 2015 Danckwerts Lecture, given by Prof Chris A. Floudas from Texas A&M University in the USA.

A scientific panel of 25 invited members from Europe, led by the EFCE President, started to develop a view on "A multi-layered view of chemical and biochemical engineering". The research will show the scope and significance of chemical and biochemical engineering in relation to the needs of modern society and the grand challenges that face us. The objectives are to encourage industry-academia collaboration and to promote a wider understanding of the importance of chemical engineering in society. The paper is due to be published in the journal *Chemical Engineering Research and Design* in 2016.

Another important activity for EFCE in 2015 relates to its long-standing goal of seeking closer engagement with the European Union and participating actively in discussions on EU research priorities. This was to be achieved by joining SPIRE, a public-private partnership set up within the EU's Horizon 2020 programme, tasked with stimulating greater resource and energy efficiency in the process industries. While it was not possible to complete the joining process during 2015, all the necessary steps were put in place to realise this ambition in early 2016.

I believe that EFCE has improved its communication with the members through some very important and successful conferences and reached out beyond Europe to attract new members and thereby getting them to know more about EFCE and its activities. It has also maintained and extended its scientific activities through its topical Working Parties and thematic Sections and recognized the achievements of its members through awards and engaging a selection of European experts in contributing to its scientific panel.

For 2016, EFCE is hoping to maintain and consolidate its position within the chemical and biochemical engineering community through better and more successful conferences; attracting more member societies from Europe and beyond; improve the communication between EFCE secretariat, trustees and the member societies; provide more support to the member societies in education and research; and, last but not least, engage the students in EFCE activities.

Rafiqul Gani, President



Working Parties and Sections

EFCE's Working Parties & Sections are at the core of the organisation and form the scientific engine that drives many of EFCE's activities. Each of its 20 Working Parties focuses on a specific aspect of Chemical Engineering. They pursue a range of activities, such as drafting position papers in their field of reference, organising scientific symposia, and setting up workshops and summer schools for PhD students. In addition, EFCE has four Sections which deal with broader topics requiring a more multidisciplinary input. They currently cover Product Design and Engineering, Food, Membrane Engineering, and Sustainability. A further new Section addressing Energy is currently under discussion.

The Working Parties provide an important forum for networking among chemical engineers in Europe. Membership to the Working Parties is drawn from among EFCE's Member Societies. Member Societies have the right to nominate delegates to join the Working Parties, with two delegates allowed to join from each European country. The Sections are open to any professional chemical engineer, or a specialist in a related field, who is willing to contribute.

2015 marked the first time that the Working Parties and Sections directly took a key role in the organisation of the European Congress of Chemical Engineering (ECCE), EFCE's flagship event. Key members of the Working Parties and Sections took the lead in managing the conference topics and sessions. This has been done in conjunction with the host organisers, who also contributed significant expertise, particularly on topics not currently directly dealt with by the Working Parties and Sections such as energy conservation and management, sludge treatment and disposal, and water treatment.

This cooperation allowed the organisers to present a broad and consistent scientific programme that adhered to rigorous scientific standards.

The experience enhanced the role of Working Party and Sections Chairs, the majority of whom were able to manage a topic area. The deep involvement of the Working Parties and Sections was a vital factor in the success of the conference, both from a scientific and an organisational point of view. We expect to use a similar approach in the organisation the 2017 World Congress of Chemical Engineering in Barcelona, which will include ECCE 11.

Jean-Marc Le Lann, Scientific Vice-President



WORKING PARTIES

Agglomeration

Contact: Stefan Heinrich, Hamburg/DE
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Characterisation of Particulate Systems

Chair: Martin Morgeneyer, Compiègne/FR
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Chemical Reaction Engineering

Chair: Guy Marin, Gent/BE
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Comminution and Classification

Chair: Arno Kwade, Braunschweig/DE
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Computer Aided Process Engineering

Chair: Jiří Klemeš, Budapest/HU
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Crystallization

Chair: Marco Mazotti, Zurich/CH
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Drying

Chair: Angélique Leonard, Liège/BE
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Education

Chair: Martin J. Pitt, Sheffield/UK
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Electrochemical Engineering

Chair: Manuel A. Rodrigo, Ciudad Real/ES
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Fluid Separations

Chair: Elisabetta Brunazzi, Pisa/IT
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High Pressure Technology

Chair: Eberhard Schlücker, Erlangen/DE
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Loss Prevention and Safety Promotion

Chair: Eddy De Rademaeker, Antwerp/BE
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Mechanics of Particulate Solids

Chair: Alvaro Ramirez Gomez, Madrid/ES
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Mixing

Chair: Jerzy Baldyga, Warszawa/PL
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Multiphase Fluid Flow

Chair: Alfredo Soldati, Udine/IT
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Polymer Reaction Engineering

Chair: Markus Busch, Darmstadt/DE
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Process Intensification

Chair: Tom Van Gerven, Leuven/BE
Thomas.VanGerven@cit.kuleuven.be

Quality by Design

Chair: Krist V. Gernay, Lyngby/DK
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Static Electricity in Industry

Chair: Istvan Berta, Budapest/HU
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Thermodynamics and Transport Properties

Chair: Jean-Charles de Hemptinne, Rueil
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SECTIONS

Product Design and Engineering

Chair: Jens Uhlemann, Leverkusen/DE
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Food

Chair: Dietrich Knorr, Berlin/DE
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Membrane Engineering

Chair: Enrico Drioli, Arcavacata di Rende/IT
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Sustainability

Co-Chairs:
Adisa Azapagic, Manchester/UK
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Michael Narodslawsky, Graz/AT
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Associated Section: European Society of Biochemical Engineering Science (ESBES)

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Events

European Congress of Chemical Engineering (ECCE10-ECAB3-EPIC5)

The European Congress of Chemical Engineering is always a highlight in EFCE's calendar. Taking place every two years, ECCE10 (held in conjunction with the third European Congress of Applied Biotechnology (ECAB3), the fifth European Process Intensification Conference (EPIC5) and the 15th Congress of the French Society of Chemical Engineering (SFGP) was held in Nice, France, on 27 September to 1 October 2015.

These events were organised by the SFGP and Live! By GL under the auspices of the European Federation of Chemical Engineering (EFCE) and the European Society of Biochemical Engineering Sciences (ESBES).

Approximately 1800 people from 67 countries around the world attended the conference. We were particularly pleased with the strong engagement of industrialists, who made up a quarter of visitors, and students, who accounted for 31%. The scientific programme was impressive, being composed of five symposia, four workshops, six plenary lectures, 82 keynotes and more than 700 oral communications organised in 202 sessions and 900 poster communications. These covered vast chemical and biochemical engineering topics, which reflected the latest scientific trends in their field. Meanwhile the exhibition area featured 39 companies in a very beautiful and pleasant space that was highly favourable for fruitful exchanges.

The congress also featured a number of novel student events, including a student quiz, a thesis competition, a jobs forum and a breakfast meeting with senior researchers, which were greatly appreciated by the students.

We now look forward to ECCE11 in 2017, which will be held in conjunction with the World Congress in Chemical Engineering (WCCE10) in Barcelona.

Martine Poux – general coordinator

Nicolas Roche – coordinator



Other Conferences & Symposia

European Symposium on Chemical Reaction Engineering (ESCRE)

ESCRE 2015 took place in the German town of Fürstfeldbruck in late October 2015, organised by the EFCE Working Party on Chemical Reaction Engineering. A sister event to the biennial International Symposium on Chemical Reaction Engineering (ISCRE), the event also included the Annual Meeting of the ProcessNet subject division Reaction Engineering. The theme of the conference, Proving Tomorrow's Solutions, emphasized the necessity of Chemical Reaction Engineering in meeting future challenges, particularly in energy sciences and technology.

With some 375 attendees from academia and industry, the event was a great success.

Plenary speakers included Rakesh Agrawal (West Lafayette, USA), Olaf Deutschmann (Karlsruhe, Germany), John C Hemminger (Irvine, USA), Johan Hoorn (Geleen, Netherlands), Dmitry Yu Murzin (Turku/Åbo, Finland); Kim B McAuley (Kingston, Canada) and Suojiang Zhang (Beijing, China).

ESCAPE 25 + PSE2015

Organised by EFCE's Working Party on Computer-Aided Process Engineering, PSE2015/ESCAPE25 united the 12th Process Systems Engineering conference and the 25th European Symposium on Computer Aided Process Engineering.

The four-day conference took place on 31 May - 4 June 2015 in Copenhagen, Denmark. The event featured four internationally renowned plenary speakers: Ignacio E. Grossmann (Carnegie-Mellon, USA), Ka Ming Ng (Hong Kong University of Science and Technology); Kai Sundmacher (Max Planck Institute for Dynamics of Complex Technical Systems, Germany) and Gintaras Reklaitis (Purdue University, USA). With a further 175 oral presentations and over 200 poster presentations, the conference attracted over 621 visitors from over 50 countries.

15th European Conference on Mixing

The 15th European Conferences on Mixing, held in Saint Petersburg, Russia, on 28 June to 3 July 2015, was organised by the EFCE Working Party on Mixing and the Department of optimization of chemical and biotechnological apparatuses, Saint Petersburg State Institute of Technology.

Chaired by Professor Rufat Abiev, the conference provided a forum for presentations and interesting debates on the latest advances in the theory and practice of mixing. Many new ideas, new applications and opinions of the world leading specialists were subject to discussion.

Conference sessions included fluid mechanical fundamentals of mixing processes, chemically reactive flows and precipitation, single- and multi-phase mixing, mixing of complex fluids, suspensions and dispersions, mixing in process intensification, mixing in biotechnological applications, and advances in numerical simulation of mixing.

14th European Symposium on Comminution and Classification (ESCC 2015)

ESCC 2015 took place in Gothenburg, Sweden, from 7-10 October 2015. Organised by Chalmers University of Technology and EFCE's Working Party on Comminution and Classification, the symposium theme was sustainability and energy efficiency.

Conference topics included comminution and classification of minerals and ores; grinding, dispersion and classification of fine particles; fundamentals, modelling and simulation and innovation and new technologies. Finally, a strand on industrial operation perspectives sought to bridge the gap between academia and industry through discussion and presentations on industrial case studies and implementations.

International Congress on Sustainability Science and Engineering – ICOSSE 15

ICOSSE 15, which took place in Balatonfüred, Hungary, from 26 to 29 May 2015, was co-organised by the University of Pannonia, the American Institute of Chemical Engineers (AIChE), and EFCE's Sustainability Section.

The purpose of the Congress is to exchange emerging ideas about ways and means of protecting the environment and its resources, to enable sustainable development and benefit society for generations to come. The event brought together researchers and practitioners of various physical and ecological sciences, fields of engineering, economics, and social sciences under one roof.

ICOSSE '15 focused on managing natural resources, industrial sustainability from a systems perspective using scientific and engineering innovations, and the considerations of social and economic aspects of sustainability. Specific topics included Sustainable Water Management; Sustainable Manufacturing; Energy Sustainability; Sustainability Issues in the Food-Energy-Water Nexus; Sustainability Education and Societal Issues.



Awards

Excellence Award in Chemical Reaction Engineering

The 2015 Excellence Award in Chemical Reaction Engineering was awarded to Dr. Luis Carlos Pereira De Oliveira.

His PhD thesis on "Development of a kinetic modeling approach for refining processes treating complex feedstocks", completed at the École Normale Supérieure de Lyon, France, under the supervision of Dr. Max Kolb, was selected by an international jury. The judges noted his thesis was particularly strong in terms of its breadth and depth, industrial relevance, innovation, number and quality of publications, and the European dimension.

De Oliveira received his Masters degree in Process Engineering from the Instituto Superior Tecnico (IST), Lisbon, Portugal, and his PhD in École Normale Supérieure, Lyon, France. Currently, he holds the position of Research Engineer at IFP Energies nouvelles, Process Design and Modelling, in Lyon, France.

The award was presented in Fürstenfeldbruck, Germany, on 30 September 2015, in conjunction with ESCRE 2015.



Young Researcher Award in Mixing

Dr. Cláudio António Pereira Da Fonte was awarded the EFCE Young Researcher Award in Mixing 2015 for his outstanding PhD thesis on "Mixing Studies with Impinging Jets: PIV/PLIF Experiments and CFD Simulation."

Dr. Da Fonte, currently a research engineer at IFP Energies nouvelles, France (IFPEN), completed his PhD thesis in the field of mixing in the Department of Chemical Engineering at the University of Porto, Portugal. His work focuses on mixing in Confined Impinging Jets (CIJs); an alternative method to conventional mixing in stirred tanks. His thesis, which provides a better understanding of this mixing method for laminar flow, also identified mixing mechanisms and flow regimes in CIJs.

Dr. Da Fonte was awarded the Young Researcher Award in Mixing 2015 at the 15th European Conference on Mixing, which was held in Saint Petersburg, Russia, from 28 June – 3 July.



Excellence Award in Thermodynamics and Transport Properties



The 2015 EFCE Excellence Award in Thermodynamics and Transport Properties was awarded to Dr. Bjørn Maribo-Mogensen for his PhD thesis on "Development of an electrolyte CPA Equation of State for Applications in the Petroleum and Chemical Industries".

The thesis provides a practical modelling solution to systems containing electrolytes. It was completed at the Department of Chemical and Biochemical Engineering, Technical University of Denmark, under the supervision of Professor Georgios M. Kontogeorgis and Associate Professor Kaj Thomsen.

Dr. Maribo-Mogensen, now a Physical Property Specialist at Linde Engineering in Germany, successfully modelled an equation of state for electrolytes with applications in the oil and gas industry as part of his research. He also developed a deeper understanding of the different models currently used for electrostatic interactions. The research has led to the creation of engineering software with substantial potential for industrial applications, such as describing the effects of electrolytes on natural gas sweetening, hydrates modelling and biofuels processing.

The award was presented in Athens, Greece, on 14 June 2015 at the European Symposium on Applied Thermodynamics (ESAT).

Excellence Award in Product Design & Engineering



Research aimed at optimising the design of fragranced products has been recognised by the European Federation of Chemical Engineering (EFCE) with its Excellence Award in Product Design and Engineering.

Dr. Miguel André Abreu Teixeira, who completed his PhD at the Laboratory of Separation and Reaction Engineering at the University of Porto, Portugal, was presented the Excellence Award for his thesis titled "Perfume performance and classification: perfumery quaternary-quinary diagram and perfumery radar".

Dr. Teixeira, currently a Fragrance Insight Analyst at International Flavors & Fragrances in The Netherlands, developed a model that took the complex process of odour perception and simplified it into a model that uses basic physical properties. The simplified model makes it much easier and quicker to predict the performance and smell of perfumed products compared to other methods. The fragrance industry could benefit from faster fragrance formulation, reduced consumption of raw materials and decreased product costs.

Excellence Award in Process Intensification

The European Federation of Chemical Engineering (EFCE) has recognised research in biomass-to-sugar conversion technologies which could reduce the size of reactor needed by a factor of up to 5,000 compared with traditional methods.

Dr. Danilo Cantero was awarded the EFCE Excellence Award in Process Intensification for his thesis on the "Intensification of Cellulose Hydrolysis Process by Supercritical Water - Obtaining of Added Value Products" which was presented on 28 September 2015 during the EPIC5 conference, held in Nice, France, in conjunction with ECCE10+ECAB3.

His work on the supercritical hydrolysis of cellulose or biomass to sugars uses water at supercritical conditions to de-polymerise the cellulose or biomass, resulting in a faster rate of reaction while also slowing down unwanted glucose decomposition. The increased rate of reaction allows for a large decrease in reactor volume. Dr. Cantero's research demonstrated that his process could yield the same amount of sugar as conventional methods, using a reactor that's 5000 times smaller. His process is also faster, saving hours or even days compared with existing methods for hydrolysing cellulose or biomass.

Dr Cantero completed his work at the Department of Chemical Engineering and Environmental Technology, University of Valladolid, Spain, under the supervision of Prof. María José Cocero Alonso and Dr. María Dolores Bermejo Roda.



Excellence Award in Membrane Engineering

Dr. David A. Vermaas, winner of the 2015 EFCE Excellence Award in Membrane Engineering, impressed with his PhD thesis, which set out how to generate energy by mixing salt water and fresh water.

Working under the supervision of Prof. Dr.Ir. Kitty Nijmeijer at the University of Twente, Vermaas used ion exchange membranes to harvest renewable energy from mixing water streams with different salinities. The difference in salinity between salt and fresh water streams, when separated by an ion exchange membrane, induces a potential difference. The redox reaction that occurs then converts ionic current into an electrical current. Vermaas' research has been in leading journals in the field and his research has resulted in two patent applications.

Vermaas currently holds a post-doctoral position at the Materials for Energy Conversion and Storage group at Delft University of Technology.

The Award was presented in Aachen, Germany, on 10 September 2015 during the Euromembrane 2015 Conference.



Student Mobility Award

Every two years, EFCE presents the Student Mobility Award, designed to encourage and promote international mobility among chemical engineering students. Consisting of a cash prizes of €2000, €1500 and €1000 respectively, the award is presented to the best European students of chemical engineering who have spent one or more semesters studying outside their home country.



The 2015 winners were selected by an international jury and received the awards during the European Congress of Chemical Engineering in Nice.

1st Prize: José Francisco Pérez Calvo, Spain

José Francisco Pérez Calvo graduated top of his class with a Bachelor's degree in chemical engineering from the Complutense University of Madrid. He then went on to study for a Masters (MSc) in chemical engineering at Delft University of Technology in the Netherlands. As part of his Master's research project, Pérez Calvo worked at BASF Ludwigshafen, Germany, for three months. He is currently studying for a PhD at ETH Zurich in Switzerland.

2nd Prize: Alberto Lozano Rivas, Spain

Alberto Lozano Rivas is currently a process engineer and Master's student from the French Institution of Petroleum (IFP) in Paris. Lozano Rivas completed a Bachelor's degree in chemical engineering at the University of Zaragoza, Spain, with an Erasmus placement at the Vienna University of Technology, Austria.

3rd Prize: Canan Dombayci, Turkey

Canan Dombayci, who is currently a PhD student at the Polytechnic University of Catalonia, Spain, completed her Master's degree in chemical engineering from Istanbul Technical University, Turkey. She also spent one year at RWTH Aachen University, Germany, as a research assistant.

Dr. Martin Pitt, Chair of EFCE's Working Party on Education, said: "One of the main aims of EFCE is to encourage students and academics to move freely between institutions and countries as part of their personal development. "Pérez Calvo has worked in three different languages and four European countries as part of his formation as a chemical engineer, demonstrating both academic excellence and versatility."

Above, from left to right: Martin Pitt, Alberto Lozano Rivas, Canan Dombayci, José Francisco Pérez Calvo and Jean-Marc Le Lann.

Process Intensification Award for Industrial Innovation

The Austrian small enterprise Microinnova and Fraunhofer ICT-IMM, Germany have received EFCE's Process Intensification Award for Industrial Innovation 2015.

Walter Linhart, head of Microinnova's plant engineering department, received the award for the company's Flow Miniplant Technology. Flow Miniplant is an integrated, flexible modular platform that analyses and optimises each step in the chemicals production process. The technology benefits from the highly efficient continuous flow processes inherent to microreactors as well as other intensification technologies.

Flow Miniplant is particularly important for special and fine chemicals often used in pharmaceutical production.

The technology is based on research funded through the 7th EU Framework Programme carried out at the Fraunhofer ICT-IMM in Mainz, Germany, which developed a special reactor for exothermal chemical processes that forms an essential part for this modular Flow Miniplant Process.

Microinnova CEO Dirk Kirschneck notes: "In the project that received the EFCE award, we were able to produce the desired chemical in one minute instead of 12 hours, equivalent to a factor 700. This impressed not only our customers, but also the EFCE jury."

Lifetime Recognition Award in Mixing

Harry Van den Akker has been named as the 2015 recipient triennial BHR Group Lifetime Recognition Award in Mixing. EFCE's Working Party on Mixing recognised Professor Van den Akker for his outstanding contribution to mixing in the process industries throughout his 38 year career.

Having spent his early career as a research engineer for Royal Dutch Shell, Van den Akker joined TU Delft as Professor of Transport Phenomena in 1988. Since 2013, he has held the position of the Bernal Chair of Fluid Mechanics at the University of Limerick. He was also visiting professor at King's College London, and Fellow at Princeton University, US. Throughout his research career at TU Delft, he has supervised over 30 PhD students, mentored assistant professors and published over 100 peer-reviewed journal articles on mixing, multiphase flow and turbulence.

Professor Van den Akker said: "I interpret this award as a confirmation that computational fluid dynamics techniques have really attained a firm position and role in mixing research and reactor design, in both industry and academia.

"I also see it as an encouragement to continue my explorations of Lattice Boltzmann techniques for simulating single-phase and multi-phase flow and transport phenomena in the field of chemical engineering."

The award, sponsored by BHR Group, comprised of a €1,500 cash prize and certificate. It was presented to Professor Van den Akker during the gala dinner at the 15th European Conference on Mixing, which was held in Saint Petersburg, Russia, from 28 June – 3 July.

Danckwerts Lecture

The 2015 Danckwerts Lecture was given by Professor Christodoulos A. Floudas from Texas A & M University, USA, during ECCE 10 in Nice.

Professor Floudas is a world-renowned authority in mathematical modelling and optimisation of complex systems.

In his lecture, he outlined how carbon capture, utilisation and sequestration (CCUS) could cut emissions in half, at an affordable price. Floudas argued that taking a multi-scale systems approach to optimising CCUS could lead to a model for CCUS solutions that could be scaled to suit carbon sources of all sizes and significantly reduce man-made carbon emissions from large stationary sources, such as power plants, refineries and iron and steel production plants.

EFCE's President Rafiqul Gani said: "This year's Danckwerts Memorial Lecture demonstrated a viable solution to grand challenge of carbon capture utilisation and sequestration that our society faces today. I am delighted that such an eminent Professor and his work served as a fitting tribute to all that Danckwerts stood for."

The Danckwerts Memorial Lecture was established in 1985 to honour Prof. Peter V. Danckwerts as a leading scholar in the field of chemical engineering and for his contributions as an Executive Editor of Chemical Engineering Science, the second Shell Professor of Chemical Engineering at the University of Cambridge, and a past President of the Institution of Chemical Engineers. The Danckwerts Lecture is co-sponsored by Elsevier, AIChE, IChemE and EFCE and is presented at the ECCE (odd years) and AIChE (even years) annual meetings.



Jacques Villermaux Medal

The Jacques Villermaux Medal is presented every four years to recognise scientific achievements within the context of the Federation's science policy, working parties, conference programme or other related activities.

Professor Joachim Werther from the Hamburg University of Technology (TUHH), Germany, was the 2015 winner.

Professor Werther, from the Institute of Solids Process Engineering and Particle Technology at TUHH, has been recognised for his outstanding scientific achievements in particle technology, with a career spanning more than 40 years in the field.

An expert in fluidisation, chemical looping technology, solids process flow simulation and has had profound influence on problem solving within particle technology, Prof Werther's particular interest is centred on the use of fluidised beds as reactors, where he developed advanced mathematical models to simulate flow within the reactor. His theoretical models became the basis for advanced fluidised bed simulation in industry, and his research has been used to optimise many of Germany's waste incinerators.

EFCE's President Rafiqul Gani noted that Werther's scientific achievements are exemplary, as is his leadership in promoting education, research and development and scholarship programs within particle technology.

The award was presented at ECCE10 in Nice, France, on 28 September 2015.



EFCE Lifetime Achievements Award

Professor Jiří J. Klemeš received EFCE's Lifetime Achievement Award for the role he played for almost forty years as a representative of the Czech and Hungarian EFCE Member Societies, an active member and chairman of the EFCE Working Party on Computer Aided Process Engineering (CAPE) and for his substantial services to chemical engineering education and qualifications. The Award also acknowledges his contribution to the organisation of numerous meetings, workshops and courses related to CAPE, process integration and modelling, and sustainability, including the ESCAPE and PRES series of events.

He was presented with the award during the PSE2015/ESCAPE25 conference held in Copenhagen, Denmark.

Summer Schools

7th European Summer School on Electrochemical Engineering (ESSEE 2015)

The 7th ESSEE took place in Leeuwarden, The Netherlands, on 22–26 June 2015. The summer school is organised every three years by EFCE's Working Party on Electrochemical Engineering. It enables up to 60 PhD students and other young researchers to learn about advanced conceptual topics within electrochemical engineering that will help them with their current and future research. The programme includes lectures by renowned scientists from across Europe, Asia and USA, a student poster session, nontechnical presentations on the effectiveness as a PhD student and presentation skills, a hands-on lab tour at Wetsus, and many social activities.

EFCE PhD-Student Workshop on Polymer Reaction Engineering

The 4th PhD-Student Workshop on Polymer Reaction Engineering, organised by the EFCE Working Party on Polymer Reaction Engineering, took place in Fürstfeldbruck, Germany, at the end of October 2015. Held as a follow-on from the European Symposium on Chemical Reaction Engineering, the workshop was a valuable international platform and networking opportunity for young researchers in the field of polymer reaction engineering.

9th European PhD Workshop on Food Engineering and Technology

In March 2015, 17 European PhD students from 12 European Countries attended the 9th European PhD Workshop on Food Engineering and Technology, which was held at the Swiss headquarters of Bühler AG. Bühler's Food and Feed Safety expert, Nicolas Meneses, hosted the event with leading food engineering professors and representatives from Nestlé and Barilla. They awarded Cornelia Koller from the University of Zurich (ETH Zurich), Switzerland with the 2015 Julius Maggi Research Award, which comprised of €2500 cash prize. The workshop was held in collaboration with the European Federation of Food Science and Technology (EFFoST) and the Section on Food of the European Federation of Chemical Engineering (EFCE).

Recruitment and appointment of new trustees

EFCE's Executive Board consists of no more than 21 charity trustees, comprising three officers, up to twelve elected trustees, three nominated trustees, and up to three co-opted trustees.

Elected Trustees

Trustees are elected at the EFCE General Assembly every two years. Member societies are invited to propose potential trustees four months ahead of the election. Each member society may nominate two candidates, one industrial and one academic. No more than six of the twelve elected trustees may be academics.

Elected trustees serve as members of EFCE's Executive Board for a two-year term starting the January after the General Assembly. They may stand for re-election for one further term, after which they must either stand down or stand for election to an officer role.

Officers

Elections for EFCE's officers – the President, Executive Vice-President and Scientific Vice-President – also take place at the General Assembly every two years. Officers are endorsed by a simple majority of voting members based on nominations made by the trustees. Officers serve a two-year term and may stand for re-election to the same position once. No officer may serve for more than five consecutive terms as officer or trustee without spending at least one term out of office.

Other Trustees

The General Secretariats may each nominate one individual to serve as trustee, for a term to be determined by the General Secretariat.

In addition, the Executive Board may co-opt up to three individuals to act as trustees. Unless removed earlier, they shall hold office until the next General Assembly. Co-opted trustees may be re-co-opted at the discretion of the trustees, but may not serve in office for more than four consecutive years.

Financial Report

from the period of 1 January 2015 to 31 December 2015

Receipts and Payments					
	Unrestricted funds	Restricted funds	Endowment funds	Total funds	Last year
Receipts	0	0	0	0	0
Subtotal	0	0	0	0	0
Assets and investment sales etc	0	0	0	0	0
Total receipts	0	0	0	0	0
Payments	0	0	0	0	0
Subtotal	0	0	0	0	0
Asset and investment purchases etc	0	0	0	0	0
Total payments	0	0	0	0	0
Net of receipts/(payments)	0	0	0	0	0
Transfers between funds	0	0	0	0	0
Cash funds last year end	0	0	0	0	0
Cash funds this year end	0	0	0	0	0

Statement of Assets and Liabilities at the end of the Period				
	Details	Unrestricted funds	Restricted funds	Endowment funds
Cash funds	0	0	0	0
Other monetary assets	0	0	0	0
	Details	Fund to which assets belong	Cost	Current Value
Investment assets	0	0	0	0
Assets retained for the charity's own use	0	0	0	0
	Details	Fund to which assets belong	Amount due	When due
Liabilities	0	0	0	0

The CIO was dormant until January 2016 when the new bank account was opened, and as a result did not have any activities or transactions during 2015.

The activities of the previous, unregistered European Federation of Chemical Engineering ceased at the start of 2016. All remaining assets were transferred to the EFCE CIO during the course of 2016, in line with a resolution by the trustees of the CIO on 15 April 2016.

Principal Office

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Charity Registration No 1159541

