EFCE

European Federation of Chemical Engineering
Europäische Föderation für Chemie-Ingenieur-Wesen
Fédération Européenne de Génie Chimique

NEWS AND EVENTS NOVEMBER 2015

Framework designed to reduce carbon emissions by 50 per cent

Reducing carbon emissions from fossil fuels is one of the key challenges of our time. Speaking at the tenth European Congress of Chemical Engineering in (ECCE 10) in Nice, France, Professor Christodoulos A. Floudas from Texas A & M University, US, outlined how carbon capture, utilisation and sequestration (CCUS) could cut emissions in half, at an affordable price.

In his delivery of the prestigious 2015 Danckwerts Memorial Lecture, Professor Floudas said that we "need to take a multi-scale systems viewpoint" in order to develop an optimal solution for CCUS, both on a nationwide and regional basis.

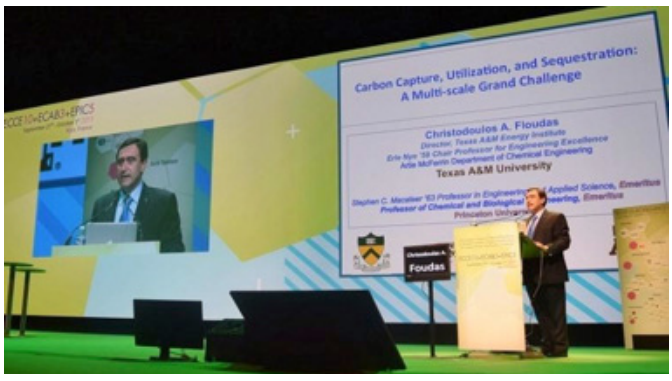
The multi-step process that could reduce man-made carbon emissions from large stationary sources, such as power plants, refineries and iron and steel production plants, provides a model for developing CCUS solutions that can be scaled to suit carbon sources of all sizes.

To arrive at an optimal CCUS solution, engineers need to screen materials, optimise the process, select the optimal technology from the available options and design a supply chain network. At each stage, they need to check and compare the costs.

In the US, there is more potential for storing carbon emissions than utilising them at an average net cost of 35.63 $/tonne of CO_2 abated.

Professor Rafiqul Gani, President of the European Federation of Chemical Engineering (EFCE) 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. And I am delighted that such an eminent Professor and his work served as a fitting tribute to all that Professor Danckwerts stood for."

The annual Danckwerts Memorial Lecture, was established to honour Professor Peter V. Danckwerts – a leading scholar in the field of chemical engineering.



Call for Nominations

EFCE Excellence Award in Recognition of an Outstanding PhD Thesis on CAPE 2016

For the sixth time, EFCE is pleased to announce the call for nominations for the Excellence Award in Recognition of an Outstanding PhD Thesis on computer-aided process engineering (CAPE) or process systems engineering (PSE).

The award consists of a cash prize of 1,500 EUR and a certificate, and will be presented to the winner at a plenary session during the ESCAPE-26 conference to be held in Portorož, Slovenia, from 12 to 15 June 2016.

The award also comprises a travel grant of up to 500 EUR and the ESCAPE registration cost. Furthermore, the successful candidate will be invited to make a plenary presentation at the ESCAPE conference and to prepare a paper for publication as a "guest paper" in Computers & Chemical Engineering.

Any PhD thesis supervised at a university or PhD-awarding institution of an EFCE member country in computer-aided process engineering (CAPE) or process systems engineering (PSE) is eligible for nomination. The candidate's thesis must have been defended after 1 January 2013. The closing date for nominations is **31 December 2015**. Further information about the nomination procedure, eligibility, supporting documentation, etc., can be obtained from the EFCE website at **www.efce.info/ExcellenceAwardCAPE.html**

EFCE Student Mobility Awards presented at latest chemical engineering congress

The 2015 Student Mobility Awards were presented to three outstanding young chemical engineers at the tenth European Congress of Chemical Engineering (ECCE 10) to recognise international mobility during their academic studies.

Presented biennially by the European Federation of Chemical Engineering (EFCE), these awards honour the best European chemical engineering students who have sought professional development and gained cross-cultural experiences by studying outside their home country for one semester or more.

This year's first prize of €2,000 was awarded to José Francisco Pérez Calvo who is currently studying for a PhD at ETH Zurich in Switzerland. As part of his PhD, Pérez Calvo is working on the Horizon 2020 project, CEMCAP, which focuses on carbon capture and storage (CCS) technologies for the cement industry.

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.

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.

"The two runners-up also showed a truly international attitude and demonstrated excellent accomplishments, but Pérez Calvo was considered the most outstanding of all the applicants. But they all provide a great example to other European students of chemical engineering."

Commenting on his experiences studying abroad, Pérez Calvo said: "I definitely have enhanced my self-confidence and capacity to produce my own ideas, as well as the ability of adapting to different demands and requirements coming from industry or academia, while working on multicultural international projects.

(L-R): Dr Martin Pitt; 2nd prize winner, Alberto Lozano Rivas; 3rd prize winner, Canan Dombayci; 1st prize winner, José Francisco Pérez Calvo; and Professor Jean-Marc Le Lann.

"I strongly believe that studying abroad is a must for scientists, engineers and managers of the future if we want to outperform in a globalized world and fulfill the expectations of society. So being recognised by EFCE for demonstrating this quality is a great achievement for me."

Second prize (€1,500) was awarded to Alberto Lozano Rivas, 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.

Third prize (€1,000) was awarded to Canan Dombayci who is currently a PhD student at the Polytechnic University of Catalonia, Spain. Dombayci 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.

CHISA and PRES 2016

The 22nd International Congress of Chemical and Process Engineering - CHISA 2016 Prague and the 19th Conference on Process Integration, Modelling and Optimisation for Energy Saving and Pollution Reduction - PRES 2016 will be jointly held in Prague, Czech Republic, on 28-31 August 2016. The congress is organised by the Czech Society of Chemical Engineering and EFCE. The objective of this joint event is to provide engineers, scientists, researchers, technologists, students and others with a platform to present their latest results, to interchange ideas, to make new contacts, to establish new collaborations, and many more.

CHISA Congress Topics:

Reaction engineering, catalysis and kinetics (reactors and transport phenomena, catalysis and particles, reforming and Fischer-Tropsch, kinetics, petrochemistry); Distillation and absorption; Extraction and leaching; Membrane separations (gas and vapour separation, pressure separation, other membrane processes, chemical reaction); Solid–liquid separations; Fluid flow and multiphase systems (bubble/ drop mechanics, interfaces and capillarity, foams, emulsions and slurries, gas–liquid(–solid) flows, surfactants, fluidization); Mixing; Computer aided process engineering (synthesis and control, modelling and design, optimisation, process system engineering); Particulate solids; Pharmaceutical engineering; Chemical engineering education.

CHISA Specialised Symposia: Symposium on environmental engineering; Symposium on safety in chemical industry; Symposium on supercritical fluid applications (sub- and supercritical water; micronization, thermodynamic data and modelling, natural products); Symposium on thermodynamics and transport properties; Symposium on novel food processes and technologies; Symposium on porous materials, nanostructures and nanocomposites; Symposium on progress in chemical technology and biotechnology (biofiltration, bioreactor applications, biotechnology, chemical technology; Symposium on process intensification and miniaturisation; Commercial and technical impact from EU project.

The Call for Papers is open: The deadline for the submission of application for oral presentation is **30 November 2015**. Later applications for oral presentation will be considered exceptionally. Posters may be accepted up to the beginning of the Congress, however only contributions received before 31 May 2016 will be included in the final program. Congress website: **www.chisa.cz/2016**

Portuguese researcher recognised by EFCE

EFCE has awarded Dr. Cláudio António Pereira da Fonte, currently a research engineer at IFP Energies nouvelles, France (IFPEN), with the Young Researcher Award in Mixing 2015. Dr. Fonte completed his PhD thesis in the field of mixing in the Department of Chemical Engineering at the University of Porto, Portugal.

Dr. Fonte's work focused 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. Giuseppina Montante, Associate Professor in the Department of Industrial Chemistry at the University of Bologna, Italy, and Chair of the Awards Committee said: "Dr. Fonte was named the recipient of this award for several reasons: the broadness of his work based both on Computational Fluid Dynamics (CFD) and advanced experimental techniques; his international exposure as a researcher; and the potential of his research, which includes industrial connections.

"The Awards Committee decided that Dr. Fonte was the candidate with the broadest portfolio in the field of mixing and recognises that he has a promising future in the field of mixing research and practice."

On being named the recipient of the award, Dr. Fonte said: "I am extremely grateful to EFCE and its Working Party on Mixing for this award. I see it as confirmation of the relevance of my work in the field of mixing by confined impinging jets; both at a more fundamental research level and its industrial applications.

"I hope this award will enable me to contribute further to research in mixing in the years to come. I would also like to take this opportunity to acknowledge the support of my PhD advisors, Professor José Carlos Lopes and Dr. Ricardo Santos, from the Laboratory of Separation and Reaction Engineering at the University of Porto."

Delft Professor honoured with lifetime award in mixing

Harry Van den Akker, Professor of Transport Phenomena at Delft University of Technology (TU Delft), the Netherlands, and the Bernal Professor of Fluid Mechanics at the University of Limerick, Ireland, has been named as the recipient of the 2015 BHR Group Lifetime Recognition Award in Mixing.

The Working Party on Mixing of the European Federation of Chemical Engineering (EFCE) has announced Professor Van den Akker as this year's winner of the triennial award in recognition of his outstanding contribution to the field of mixing science and technology in the process industries throughout his 38 year career.

Professor Van den Akker spent his early career as a research engineer for Royal Dutch Shell before joining 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. Professor Van den Akker has also held visitor professor and fellow positions at King's College London, UK, and 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. His published work is included in the top 20 most cited articles in significant journals within the field, including Chemical Engineering Research and Design (ChERD) and the American Institute of Chemical Engineers (AIChE) Journal.

Professor Van den Akker said: "I am excited about this recognition of my research efforts in the scientifically challenging and industrially relevant field of mixing. 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. Last but not least, I owe acknowledgements to all former members of my Delft research group for their contributions."

Associate Professor Giuseppina Montante, chair of the awards committee for the Working Party on Mixing, added: "The awards committee unanimously selected Professor Harry Van den Akker as the recipient of the BHR Group Lifetime Recognition Award in Mixing 2015 for his outstanding contribution to the advancement of mixing science, as recognition for the importance for his work in the European chemical engineering community and in appreciation of its industrial significance."

Picture shows (L-R): Dr. Gül Özcan-Taskin, BHR Group, presenting the BHR Group Lifetime Recognition Award in Mixing certificate to Professor Harry Van den Akker.

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.

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