

EFCE Awards

Excellence award goes to non-equilibrium thermodynamics investigation of transport properties



Prof. Øivind Wilhelmsen was granted the 2017 Excellence Award by the Working Party on Thermodynamics and Transport Properties in recognition of his thesis research on the heat and mass transport at the

interface of nano-droplets.

His thesis work entitled "Equilibrium and Non-equilibrium thermodynamics of planar and curved interfaces" was conducted under the supervision of Prof. Signe Kjelstrup at the Norwegian University of Science and Technology (NTNU). It was defended on November 27, 2015. The judges congratulated Prof Wilhelmsen on the impressive number of papers in the body of the thesis, 13 in total, all of which were lauded as 'highly original'. They noted that Wilhelmsen was the first to carry out the particular equilibrium and transport studies for curved interfaces, the first to predict droplet stability in confinement, and the first to give heat and mass resistivities for water droplets.

Prof. Signe Kjelstrup wrote: "The work represents an extension of the theory of non-equilibrium thermodynamics to include heterogeneous systems. It is also of importance for applications, for instance in the modelling of phase transitions of water under various conditions in nature and industry. One may speculate that this can improve climate modelling, but the applications are difficult to oversee at the moment, because the method will add to the understanding and description of phase transitions in general."

Recommending Øivind Wilhelmsen for the Award, Prof. Miguel Rubi stated: "Dr. Wilhelmsen has energy, enthusiasm, and talent to take on new directions of research and to make valua-

ble contributions to them. He has a methodical mind, an optimistic attitude, and is unusually skilled at numerical and analytical methods. He takes an extraordinary scientific care about his work, which goes far beyond what he has actually published." Prof. Dick Bedeaux wrote: "His work on this problem literally opens new windows in the understanding of nano thermodynamics, a field of the utmost importance."

Prof. Øivind Wilhelmsen has been visiting researcher at the Eidgenössische Technische Hochschule (ETH) in Zurich, Switzerland and the University of Barcelona (UB) in Spain. Since 2010, he has been working as a research scientist at SINTEF Energy Research. On the basis of his total production he was named adjunct professor in thermodynamics and renewable energy technology at Norwegian University of Science and Technology in May 2016. His H-factor – a measure of the productivity and citation impact of a scholar - is as high as 11 and his work received around 500 citations.

Comprising a certificate and cash prize of 1,500 Euros, the award was presented on 21 May 2017 during the 29th European Symposium on Applied Thermodynamics (ESAT) that was held in Bucharest, Romania, from 18 – 21 May 2017.

Welcome to the summer 2017 issue of the EFCE newsletter. If you have any comments on the newsletter please get in touch.

Rafiqul Gani

EFCE President

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PhD Workshop on Food Engineering and Technology of the EFCE Section Food in cooperation with the European Federation of Food Science and Technology (EFFoST) Nestlé Product Development Center, Singen, Germany, 27-28 April 2017

This year's event hosted 14 selected PhD students from 10 European countries. The student participants are supported with up to € 500 for travel and accommodation.

In addition two valuable awards of € 2,500 were offered to the best presentations and research work.

The winners of the Julius Maggi Research Awards 2017 with focus on Food Product Engineering, sponsored by Nestlé PTC, Singen, DE, and presented by Sean Westcott, Managing Director, are:

- **Kristin Lügger, TU Hamburg-Harburg, DE**
- **Jannina Dombrowski, TU Munich, DE**
- **Katariina Rommi, VTT Espoo, FI**

The winners of the Bühler Food Engineering Award 2017 with focus on Food Process Engineering, sponsored by Bühler AG, Uzwil, CH, and presented by Andreas Baumann, are:

- **Volker Lammers, ETH Zürich/DIL, CH/DE**
- **Linda Brütsch, ETH Zürich, CH**
- **Benedict Purschke, Boku Vienna, AT**

2017 Award in electrochemical engineering presented to two excellent young scientists

This year, the Carl Wagner Medal of Excellence in Electrochemical Engineering was presented to two laureates, **Dr. Carlo Santoro**, and **Dr. João André da Costa Tedim**.

The jury decided to share the Award among the two due to the "the outstanding contributions to research in applied electrochemistry or electrochemical engineering" of both winners, based on their impressive publications (highest h-index and number of citations), high reputation in the field, a significant postdoctoral experience and a very interesting international presence.

Carlo Santoro received his Master of Science of Environmental Engineering at the Politecnico di Milano, Italy, in 2008, under the supervision of Prof. Andrea Casalegno.



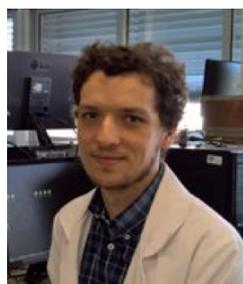
Santoro received his PhD in Environmental Engineering at the University of Connecticut, USA, in 2013, supervised by Prof. Baikun Li. His work focused on innovative interdisciplinary research in wastewater treatment, bio-electrochemistry, material development and waste

conversion processes. This saw him explore bioelectrochemical systems (BES) for simultaneous wastewater treatment and electrical energy production and the development and optimization of novel materials for enhancing oxidation and reduction reaction in such systems.

Receiving the Electrochemical Society's F. M. Becket Summer Research Fellowship brought him to Prof. Atanassov's lab at the University of New Mexico, which he went on to join as a post-Doctoral Fellow

Carlo Santoro has since been promoted to Research Assistant Professor in Prof Atanassov's lab, focusing on the development of novel low-cost platinum-free catalyst for O₂ reduction reaction, H₂ evolution reaction and CO₂ electro-reduction; combination of bio-electrochemical systems with internal super-capacitor for power/energy harvesting and increase the wastewater treatment, producing hydrogen and water desalination and pharmaceutical removal utilizing BES.

In his nomination, Prof. Atanassov stated: "Carlo is a great example of an aspiring young scientist who combines enthusiasm with highest level of energy and contribution. He is distinct not simply with his prolific publication record but with the most interdisciplinary and highly collaborative character of all those papers. Carlo has extremely high potential to become a leader in bio-electrochemistry field because of the most fortunate combination of diverse technical preparedness, analytical talent, technical inventiveness and interperson organizational skill."



João André da Costa Tedim received his BSc in Chemistry from the University of Porto, Portugal in 2004 and in 2008 his PhD in Physical Chemistry from the University of Leicester, United Kingdom (supervisor: Prof. A. Robert Hillman). In 2009 he joined CICECO - Aveiro Institute of

Materials, Department of Materials and Ceramic Engineering, University of Aveiro (UA), Portugal as a post-Doctoral Fellow. Since 2012 he is Research

Assistant at the same institute.

Currently, João Tedim leads a research group built with funds from his own projects, supervising a team of nine. Several of the team's projects involve industrial partners such as Airbus and Bosch, and have brought significant funding to University of Aveiro.

In November 2010, Tedim, together with three colleagues, created a spin-out company, Smallmatek (www.smallmatek.pt), a coatings specialist which aims to bridge the gap between lab scale validation and industrial testing. SMT was initially incubated at UA's incubator (IEUA), becoming the first graduated company in the area of Materials Science of IEUA in the end of 2013. Currently, the company has nine members of staff, six of which are former students or researchers from UA. At this stage, the company is entering the market of coating additives with different anticorrosion solutions, for different branches of industry.

Working in the field of materials science and engineering, Tedim's research interests include the Design and synthesis of micro and nanostructured additives for controlled release of active species in the area of corrosion protection, sensing, and anti-fouling, especially, the development of nanocontainers for controlled release of corrosion inhibitors, sensors and biocides; electrochemical characterization of corrosion processes, screening of corrosion inhibitors; and the development and characterization of organic coatings and multifunctional coatings for high performance applications, from aeronautical to maritime industries.

His nominator Prof. Mario Ferreira stated: "Based in the above facts I consider him in the top few young people in the field of applied electrochemistry or electrochemical engineering since apart his good academic records he was able to make successfully the connection between university and industry through direct technology transfer."

The Carl Wagner Medal of Excellence in Electrochemical Engineering is awarded every three years by the EFCE Working Party on Electrochemical Engineering to a European researcher under the age of 35 for outstanding contributions to research in applied electrochemistry or electrochemical engineering.

The Award was presented for the 6th time at the 11th European Symposium on Electrochemical Engineering (ESEE) held in Prague, Czech Republic, on 4-8 June 2017. Both laureates were invited to give a plenary lecture at ESEE on 8 June 2017.

News from EFCE member societies

Bulgarian-Russian Collaboration to tackle power and chemical engineering problems

The Institute of Chemical Engineering at the Bulgarian Academy of Sciences as an EFCE member organisation, the Research Center for Power Engineering Problems of the Russian Academy of Sciences in Kazan (also known as Academenergo) and the Siberian Institute of Catalysis, part of the Russian Academy of Sciences, are founding members of the newly-established International Scientific Center for Power and Chemical Engineering Problems (ISCPCEP; www.int-sci-center.bas.bg). Its other members are two companies based in Sofia, Chimremontstoi and ChemEng Ltd.

The Centre, headquartered in Sofia, Bulgaria, was set up to coordinate joint interdisciplinary research and innovation between its members, and operates under the leadership of Professor Venko Beschkov, Director of ISCPCEP, and Professor Christo Boyadjiev, the chairman of ISCPCEP's Scientific Council.

"In particular, we want to support joint research in energy and chemical engineering and adjacent areas, including joint research publications, grant applications and projects. We are also looking forward to working on some of the challenges brought to the table by our industrial partners, collaborating in joint laboratories and educational centres, and the joint accreditation of scientists, such as postgraduate researchers and PhD programmes," says Prof Boyadjiev.

Some of the early scientific activities will focus on

- Industrial gas purification, specifically stripping SO₂, CO₂ and dust
- Carbon capture and storage
- Modeling and simulation of processes in industrial column apparatuses
- Absorption-adsorption method and apparatus for gas cleaning from SO₂
- High-speed dust collection in a Venturi scrubber
- Production of biogas through continuous anaerobic attenuation of organic raw materials
- Improving energy efficiency of continuous and batch processes through better waste heat recycling

The organisation is open to collaboration with more scientific centres and scientists from Bulgaria, Russia and other countries. Every new participant must present a broad plan for their investigations in energy or chemical engineering.
Christo Boyadjiev

Call for Nominations

EFCE Excellence Award in Recognition of an Outstanding PhD Thesis on CAPE 2018

The European Federation of Chemical Engineering (EFCE) is pleased to announce the call for nominations for its prestigious Excellence Award in Recognition of an Outstanding PhD Thesis on CAPE. Launched in 2006, this biennial award has been instituted to recognise a PhD thesis which demonstrates an outstanding contribution to research and/or practice in 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-28 conference to be held in Graz, Austria, from 10 to 13 June 2018. 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 2015.

The closing date for nominations is 31 December 2017.



The Award is generously sponsored by Process Systems Enterprise Inc.

Further information about the nomination procedure, eligibility, supporting documentation, etc., can be obtained from the EFCE website at www.efce.info/ExcellenceAwardCAPE.html

EFCE calls for nominations for the Excellence Award in Chemical Reaction Engineering 2018

For the fourth time, the European Federation of Chemical Engineering (EFCE) is pleased to announce the call for nominations for its Excellence Award in Chemical Reaction Engineering.

Launched in 2009, this award has been instituted to recognise an outstanding PhD thesis in the field of chemical reaction engineering.

The award winner will receive a certificate, a cash prize of EUR 1,500, a travel grant of up to EUR 500 and fee waiver to attend the conference where the award ceremony will take place. The 2018 award will be presented at a special session of the 25th International Symposium on Chemical Reaction Engineering – ISCRE 25, which will be held in Florence, Italy, from 20 to 23 May 2018. The successful candidate will be invited to give a presentation following the award ceremony.

Nominations may be submitted by any PhD supervisor at a university or PhD-awarding institution in an EFCE Member Country. The PhD thesis nominated must address a topic relevant to the field of chemical reaction engineering. PhD theses defended and published between 1 January 2015 and 30 September 2017 may be proposed for evaluation. **Deadline for nominations: 30 October 2017.**



The 2018 EFCE Excellence Award in Chemical Reaction Engineering is generously sponsored by BP International Limited.

Further information about the nomination procedure, eligibility, and supporting documentation can be

obtained from the EFCE website: <http://www.efce.info/ExcellenceAwardCRE.html>



10TH WORLD CONGRESS OF CHEMICAL ENGINEERING – WCCE10 incorporating the 11th European Congress of Chemical Engineering (ECCE11) and the 4th European Congress of Applied Biotechnology (ECAB4)

Barcelona, Spain, 1-5 October 2017 (EFCE Event No. 741)

**Theme: Chemical and Biochemical
Engineering in a Global World:
"Solutions 4 Global Challenges"**



His Majesty, the **King of Spain, Felipe VI** has accepted to chair the congress showing the crown and the country's support for a global event that will gather the best at chemical engineering.

Scientific Programme

The preliminary programme is now available for download here (<http://www.wcce10.org/index.php/program/st-program?id=209>).

The following plenary speakers have been confirmed: **Ignacio E. Grossman**, Carnegie Mellon University, USA "*Evolution of Process Systems Engineering and Future Trends in Research*"; **James (Jim) R. Fitterling**, The Dow Chemical Company, USA "WCCE10 Opening Plenary"; **Juan Lladó**, Técnicas Reunidas, Spain "*Engineering strategies for a growing world: TR experience*"; **Molly Stevens**, Imperial College London, UK "*Bio-responsive hybrid materials for regenerative medicine and biosensing*"; **Philippe A. Tanguy**, R&D Partnerships Total, France "*Solving Global Energy Issues*"; **Peter Schuhmacher**, BASF, Germany "*Process Engineering Research in the Chemical Industry*".

Furthermore, on the occasion of WCCE10, **Rakesh Agrawal**, Winthrop E. Stone Distinguished Professor in the School of Chemical Engineering at Purdue University, USA will present the P. V. Danckwerts Memorial Lecture under the title: "*Challenges and Opportunities for Chemical Engineering in an Emerging Solar Economy*".

The **P. V. 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 Executive Editor of Chemical Engineering Science, the second Shell Professor of Chemical Engineering at the University of Cambridge, and past president of the Institute of Chemical Engineers. The Danckwerts Lecture is co-sponsored by Chemical Engineering Science, IChemE, AIChE, and EFCE, and is held in alternating years at the ECCE and AIChE meetings.

Special activities for students

- **Student Poster competition:** If you are an undergraduate or master degree student, DO NOT miss this poster session! The deadline for abstract submissions is Saturday, 9 September 2017 (This date will not be extended). To present your poster, please follow the abstract template (<http://www.wcce10.org/images/site/Template.docx>). You can select any of the 7 congress topics. The top 7 posters win a prize of EUR 500. Acceptance to the poster competition will be announced by 14 September 2017. More information <http://www.wcce10.org/index.php/program/student-program?id=205>
- **Free Weekend Student bus trip:** ANQUE's Madrid Chapter has organised a free Bus transport departing from Madrid on the 29th of September to Barcelona and returning on the 2nd of October.

Register now (<http://www.wcce10.org/index.php/registration/register-online>)!

For further details, please visit the World Congress website at: <http://www.wcce10.org>

Join us in Barcelona!

EFCE Events organised by/on behalf of EFCE

European Symposium on Comminution and Classification – ESCC 2017

Izmir-Seferihisar, Turkey, 11-14 September 2017
(EFCE Event No. 747)

ESCC 2017 will develop the themes from previous ESCCs which covers processing of minerals, ores and cement, grinding, dispersing and classification, new and non-classical applications, fundamentals and modelling & simulation of comminution.

Topics: Processing of primary and secondary materials, especially minerals, ore sand cement; Grinding, dispersing and classification of fine particles, particularly in food, pharmaceutical, chemical and electronic industries; New and non-classical applications as well as new developments of milling machines and mill periphery; Fundamentals, modelling and simulation of particle breakage as well as of grinding and classification processes; Industrial comminution practices-mining.

A short course on High Compression Milling will be organised on 10 September 2017. Details about the programme and the registration will be announced via the congress website

Register now!

Website: <http://www.escc2017.org/>

6th International Conference on Population Balance Modelling - PBM2018

Ghent Belgium, 7-9 May 2018
(EFCE Event No. 749)

This 6th International Conference on Population Balance Modelling - PBM2018 aims at bringing together researchers and practitioners with diverse backgrounds to allow exchange of ideas across various sub-fields that use population balances, and to provide opportunities for researchers to identify new domains to expand into and new tools to use. Ghent University and the Technical University of Denmark - DTU are joining forces to make PBM 2018 an open platform to share population balance model research with a high scientific quality, interesting applications and new significant developments. To achieve all this, they are providing flexible

registration fees and incentives for young researchers, aiming for an attractive scientific programme, world-wide participation and high industrial participation.

PBM themes: Formulation and solution of PB Models; Identification and uncertainty of PB Models (Validation); Optimization and control using PB Models; Novel applications of PB Models (e.g. biological systems); PB Models and spatial heterogeneities

Safe the date! Online submission of abstracts will be available from 1 September 2017; Deadline for abstract submission: 1 November 2017

Website: <http://www.pbm2018.ugent.be/>

ISCRE 25 – 25th International Symposium on Chemical Reaction Engineering

Florence, Italy, 20-23 May 2018
(EFCE Event No. 743)

Theme: Engineering the chemical transformation by bridging science and technology

The Conference will cover both the latest methodological developments as well as the many emerging applications of CRE to crucial technologies for energy conversion, environmental protection and sustainable chemicals production.

Conference topics: Chemical Kinetics (a. Heterogeneous & homogeneous catalytic reactions; b. Homogeneous & heterogeneous non-catalytic reactions; c. Biotech reaction systems); Advances in Chemical Reactor Engineering and Design (a. Multiphase reactors; b. Multifunctional & non-conventional reactors; c. Structured catalysts & reactors; d. Safe operation of chemical reactors); Multiscale Approaches to Chemical Reaction Engineering (a. Homogeneous and multiphase CFD modeling; b. Analysis & design of porous media; b. Integration of the chemical reactor in plant layout); 4) Novel Materials in Reaction Engineering (a. Catalysts, sorbents; b. Novel porous materials; c. Membranes); 5) Gianni Astarita Young Investigator Award.

The call for papers is open. Deadline for abstract submission: 30 September 2017.

Website: <http://www.aidic.it/iscre25/>

28th European Symposium on Computer Aided Process Engineering - ESCAPE-28 Graz, Austria, 10-13 June 2018 (EFCE Event No. 745)

Practitioners and academics working in the field of Computer Aided Process Engineering are invited to present up-to-date original research and developments to the 28th Edition of the European Symposium on Computer Aided Process Engineering (ESCAPE-28). The ESCAPE series is organised every year by the EFCE Working Party on Computer Aided Process Engineering (CAPE).

Conference themes: Model Development and Simulation; Methods, Software and Tools; Open Science Movement and Education; Process Synthesis, Process Design and Life Cycle Modelling; Process Operation and Control; Bioresources, Bioprocesses and Biomedical Systems; Environment and Energy; Food, (Bio-) Pharma, and Fine Chemicals

The call for papers is open. Deadline for abstract submission: 5 October 2017.

Website: <https://www.tugraz.at/events/escape28/>

16th European Conference on Mixing Toulouse, France, 9-12 September 2018 (EFCE Event No. 746)

The successful series of European Conferences on Mixing, which is organised by the EFCE Working Party on Mixing, has been running since 1974 and attracts academics and industrialists from all over the world to discuss progress on mixing technology, research and applications in the process industries. The conference covers mixing in batch, semi-batch and continuous flows, as well as in novel equipment types, including those used for process intensification. It welcomes works employing experimental and/or numerical techniques (e.g. CFD) to explore challenges in the following core mixing topics: Single phase mixing, from turbulent to laminar flow; Dispersions and multiphase mixing; Mixing of products high viscosity and complex rheology; Mixing in reactive flows; Heat transfer and mixing.

Save the date! The call for papers will open on 8 January 2018; Deadline for abstract submission: 1 April 2018

Website: <http://inpact.inp-toulouse.fr/MIXING16/>

Who's who

In Memoriam – Professor Barry Azzopardi

Professor Barry Azzopardi passed away on 22 May 2017 after bravely fighting against his cancer for several years. Barry was an exquisite fellow, an excellent scientist, and a good friend. Barry dedicated much of his time and effort to our community of multiphase flow, helping to build it since the first years.

He was a committed member of the EFCE Working Party on Multiphase Fluid Flow (WP MFF) since 1989 and its Chair from 1991 to 2000. Due to his illness, he could not attend the WP MFF meetings but still he was contributing to all of them by sending papers with co-workers and students in many and diverse topics, showing his care for the field.

His support for the Working Party was invaluable. Working Party members remember his anecdotes and speeches which enriched their scientific gatherings.

Distillation & Absorption 2018 Florence, Italy, 16-19 September 2018 (EFCE Event No. 737)

The international conference Distillation & Absorption 2018, to be held in the historic city of Florence in the beautiful region of Tuscany in Italy, will showcase the newest and best in distillation & absorption technology and will cover a broad range of fundamental and applied aspects. The conference series is the leading international forum for research, development, standards and applications related to this domain. Leading the conference organization is AIDIC, working in close collaboration with the EFCE Working Party on Fluid Separations. The conference will include plenary contributions by outstanding speakers, oral presentations in two parallel streams and poster sessions. Other special events include vendor exhibits, the DA2018 poster award and the presentation of the EFCE Fluid Separations Excellence Award.

The preliminary list of topics includes: Basic data and fundamental principles; Carbon capture and absorption; Conceptual process design and Life Cycle Analysis; Modelling and simulation; Control, operation, troubleshooting and manufacturing excellence; Reactive and hybrid separations; Emerging separations and technologies; Fine chemicals, pharma and bio based processes; Equipment design; Energy efficiency and technology

The call for papers is open. Deadline for abstract submission: 15 October 2017.
Website: <http://www.aidic.it/da2018/>

EFCE Events in 2019/20

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

Loss Prevention 2019

Delft, The Netherlands, 16-19 June 2019 (EFCE Event No. 750)

Save the date!

ECCE12/ECAB5 - 12th European Congress of Chemical Engineering & 5th European Congress on Applied Biotechnology

Florence, Italy, 15-19 September 2019 (EFCE Event No. 744)

Save the date!

21st International Symposium on Industrial Crystallization - ISIC21

Potsdam, Germany, 8-11 September 2020 (EFCE Event No. 751)

Save the date!



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