



Contribute to ECCE12 & ECAB5 now!

Be part of the major 2019 chemical engineering and biotechnology conference in Europe!



We are pleased to introduce the plenary speakers and special symposia of this year's major EFCE events **ECCE12 & ECAB5** in **Florence, Italy, from 15 to 19 of September 2019**, organized by AIDIC under the auspices of EFCE and ESBS.

ECCE12 & ECAB5 will be a great opportunity to meet with other colleagues and groups in Chemical Engineering and the EFCE, and of course to hear about recent research and development.

The six plenaries, six special symposia and the student session will be a great addition to the twelve topics. "**Bridging Science with Technology, a Renaissance in Chemical Engineering**" is a theme which could not be more fitting to a conference in Florence, being the historical birthplace of Renaissance. The topics will range from classics, like process simulation and reactor design, to the most current ones, like nanotechnologies, bio-fuels, bio-catalysts, food and water, that represent the challenges of the future and are of interest to everybody, see <https://aidic.it/ecce12/topics.php>

CALL FOR ABSTRACTS

Don't miss the chance to submit your abstract!

Final deadline: 30 April 2019

<http://www.ecce12-ecab5.org>

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

Hermann Feise
EFCE President

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Plenary Speakers

- **Prof. H. Scott Fogler** from USA. He is the Ame and Catherine Vennema Professor of Chemical Engineering and the Arthur F. Thurnau Professor at the University of Michigan in Ann Arbor and was the 2009 National President of the American Institute of Chemical Engineers. His lecture will be on **"Applications of Chemical Engineering to Upstream Engineering"**.
- **Prof. Flavio Manenti** from Italy. He is Professor of Chemical Plants at Milan Politecnico (Department of Chemistry, Materials and Chemical Engineering "Giulio Natta") and former Professor at TU Berlin (Alexander von Humboldt Senior Scientist) and TPU (Chemical and Nuclear Engineering Chair). His lecture will be on **"Perspectives for CO₂ Utilization"**.
- **Prof. Inmaculada Ortiz Uribe** is Professor of Chemical Engineering at the University of Cantabria, Spain, since 1996. She has been visiting Professor at Wuhan University, China, in 2010 and Fulbright Fellow at Carnegie Mellon University, USA, in 2017. Her lecture will be on **"Separation challenges in the quest for sustainability"**.
- **Prof. Jürgen Pleiss** from Germany. He is head of the bioinformatics group at the Institute of Biochemistry and Technical Biochemistry of the University of Stuttgart since 1995. His lecture will be on **"Biocatalysis/Protein Enzyme Stability"**.
- **Dr. Marinke Wijngaard** from the Netherland. She holds a degree in chemical engineering from the Technical University of Eindhoven and is MD of TNO Circular Economy & Environment. TNO is an independent applied research organization in Holland. Her lecture will be on **"Chemical recycling of complex plastics"**.
- **The Laureate of the Danckwerts Lecture**, who will be announced soon.

As you can see the speakers have a very strong and diverse background and are covering subjects that I'm sure will be of great interest for all participants.

Mini-Symposia

- **3rd Workshop on Electrochemical Engineering: Industrial Electrochemistry and Electrocatalysis**
The 3rd Workshop on Electrochemical Engineering aims to continue the discussion on the role of Electrochemical Engineering on

the current scientific and industrial scenario, focusing on the impact of the electrochemical and bio-electrochemical technologies on emerging and traditional problems such as the global energy market and the energy supply, the water and soil remediation/preservation, as well as the synthesis and modeling of new performing materials for electro and photo-electro-catalytic processes.

Participants will be researchers and industrialists with interests in electrochemistry or electrochemical engineering. Presentations of research interests will be combined with discussions on new ways to collaborate and associated problems and opportunities.

Short research presentations will finish with a round table discussion of strategic topics in electrochemical engineering. In addition, there will be a "partnering" session to discuss possibilities for collaboration

Topics: Electrochemical reactors; Industrial electrochemistry; Electrochemical engineering in environmental protection; Electrochemical energy conversion and storage; Corrosion protection engineering; Other areas.

Further information and abstract submission: <https://aidic.it/ecce12/symposium1.php>

- **Mini-Symposium on Energy and Chemical Engineering**

The EFCE Energy Section will be organising a Mini-Symposium on "Energy and chemical engineering". The energy transition and the mitigation of the CO₂ emissions are key challenges for the chemical engineering community. On the one hand, energy is the main driver of the chemical industry and on the other hand, chemical engineering is a key discipline for the supply of energy services. These include the energy conversion, the CO₂ capture and reuse and the integration of renewable energy sources.

In particular, the topics of interest will be: Energy and resource efficiency in the chemical and process industry; Energy conversion, renewable energy and CO₂ mitigation; Waste-water-energy nexus; Chemical engineering for fuels and transportation; Biofuels and biorefineries; CO₂ capture & reuse; Energy storage & electrochemical processes

Further information and abstract submission: <https://aidic.it/ecce12/symposium2.php>

- **Mini-Symposium on Continuous Manufacturing**
Continuous manufacturing has been

recognized as the biggest opportunity for further optimization of the production of biopharmaceuticals and industrial enzymes in a more efficient way. This has the potential to significantly lower the production costs and enable accessibility of biologics to a much wider population, including developing countries, and to reduce the environmental footprint, and improve product quality. Despite the advantages of continuous manufacturing, the vast majority of biologics is still produced entirely in batch mode, and the product recovery is completely performed in a batch-wise manner. With this mini symposium we expect to address several topics including economic and environmental modelling, miniaturization, scale-up and scale-down of unit operations and process design and development of integrated continuous downstream processes, which will contribute to the intensification of the downstream processing of biological products and to train scientists in the field of continuous downstream processing.

Further information and abstract submission: <https://aidic.it/ecce12/symposium3.php>

- **Mini-Symposium on Crystallization fundamentals and industrial processes**

The mini-symposium offers a platform to the crystallization community for international exchange between scientists and engineers of all disciplines, academia and industry, and between novice and expert. Crystallization takes place in most natural physical, biological, and chemical systems, and is exploited today in thousands of applications, from the production of commodities to that of pharmaceuticals, food ingredients and fine chemicals. Research is active on a broad range of topics from fundamentals to industrial applications, and has led to new breakthrough results and innovative products in recent years. Crystallization's stimulating challenges and exciting opportunities make it a very inspiring and rewarding scientific and technical field.

Topics: Fundamentals of Crystallization; Process Analytical Tools in Crystallization; Modeling of Crystallization Processes, incl. Mixing; Crystallization Processes; Industrial Applications

Further information and abstract submission: <https://aidic.it/ecce12/symposium4.php>

- **7th Symposium on Product Design and Engineering**

Product design and engineering is considered

Exhibition & Sponsorship opportunities

AIDIC invites companies to participate as a sponsor and/or exhibitor of ECCE12&ECAB5. The European Congress presents an opportunity for companies to showcase the very best of their innovation and enterprises. Diverse sponsorship and exhibition opportunities are available that meet any requirement and budget.

For further information and the Sponsorship Registration Form, please visit the Congress website at <https://aidic.it/ecce12/sponsors.php>

Sponsors (as of 1 April 2019): Gold sponsor: BASF SE; Silver sponsor: Baker Hughes GE; Bronze sponsor: Novo Nordisk, Raffineria di Milazzo

Exhibitors (as of 1 April 2019): De Gruyner, Fraunhofer, HNP Mikrosystem GmbH, Precision Flow Controls, Sopat GmbH, Techma Gmp.

a branch of the general chemical engineering discipline at the interface between the fields of chemical engineering, formulation science & technology and materials science & engineering. It is applied in many industrial areas such as pharmaceutical, biomedical, food and feed products, cosmetics, adhesives, coatings, composites, etc. as all require research into the physical, chemical and biological processes that create specific formulated product structures.

Topics: Structured product design and engineering methodology covering all elements in the product supply chain; Molecular design and engineering of properties; Understanding of molecular/micro-structure and product performance relationships; Insight into molecular/micro-structure and processing relationships.

Further information and abstract submission: <https://aidic.it/ecce12/symposium5.php>

Please have a look at the conference site at www.ecce12-ecab5.org to get more information about the program, the committees, the sponsors, the plenary, parallel and poster sessions, as well as the specific topics covered in the ECCE and ECAB events.

There are many reasons for you to join us, so: arrivederci a Firenze!

Hermann Feise
EFCE President

ECCE12 & ECAB5 Student Program

Interview with Gabriele Verrecchia, Coordinator of the ECCE12 & ECAB5 Student Committee



Gabriele, who are the members of the Student Committee and where are they coming from?

The Committee is composed by students and young researchers coming from Italy, like me, (Giorgio Vilardi, Paolo Trucillo, Eleonora Landi and Andrea

Bassani), from France (Lucia Giarracca, Nicholas Lusnier), from Belgium (Laura Pirro), from Spain (Guillermo Diaz-Sainz and José Luis Sanchez), from Germany (Olivier Grossman) and from UK (Hadjidemetriou Kyriacos). As you can see from the names, many are studying or working far from their native countries: post Erasmus Europe is a true melting pot!

The original nucleus was the AIDIC Giovani team, composed by young chemical engineers and students. We realized that we could not miss the opportunity of this prestigious event, held in Italy 22 years after the first ECCE conference, and that we should organize a number of activities aimed at young researchers and professionals, who would attend to the event. This is how a truly international project started, with participation of young chemical engineers from different countries all over Europe.

How do you manage to work together, being so dispersed?

Actually the communication tools available today allow us to work together rather easily, obviously by e-mail, but also through WhatsApp and Skype messaging and teleconferencing. These are free platforms, accessible via smartphone, and this makes the whole process very simple, when compared to the situation our more senior colleagues had to face just a few years back.

Can you summarize the initiatives you have planned?

For Florence we are planning a Pub Quiz, a PhD

Career Fair, a Meet your Idol event, a Scientific Speed Date, a Business Plans competition and the key event, the Process Simulation Cup - PSC.

Thank you, but some events have rather unusual names, not so straightforward. What exactly is a Pub Quiz?

At the end of the first day of the event, all participants to the Student Program walk to a nice place to stay and drink something together, hence the name. The drinking part is aimed to relax a bit and help making a rather informal environment. Various teams are formed, put together people from different countries and places. In addition to the student teams there is also a team of professors, in order to make the competition more interesting. Various questions are asked, related to scientific matters, current events, music, general knowledge, etc. At the end of the quiz, the winning team receives a nice prize.

Here is what I'm saying: Do you like challenges? Participate to the Pub Quiz: maybe your magna cum laude degree will not be enough to win!

What about the Scientific Speed Date?

Technically this is a social activity, managed by a facilitator, even if very informally, to encourage a large group of people to talk one another, to raise questions on scientific/technical subjects, highlighting links to ethical and social themes..

The main purpose of this initiative, like the Pub Quiz, is to encourage networking, which is finally the main purpose of the Student Program described in one word.

Let's talk about research. If one is a young researcher, working on catalysts, he or she might be interested in talking about his/her work with other researchers, active in the same or similar fields. One may talk to people having similar or complementary interests and create new friendships. From contacts established thanks to these initiatives, new ideas, new teams may be developed that eventually might create new studies, programs or scientific papers!

And the Meet your Idol event?

The speakers of the conference will be very

busy with plenary and keynote lectures, presentations, meetings, luncheons and dinners. So we thought: why not to engage for breakfasts as well? Meet your Idols is in fact a format dedicated to young people who want to start the day having a coffee with key people of the research and industry world. It's an opportunity to meet up the author of the last book you read or with a top player of your business.

Finally what about the Process Simulation Cup (PSC)?

The PSC is a competition simulation open to the participants to the Conference. We are defining the details with the Student Program Main Sponsor, Chemstations Europe GmbH from Germany, and they will be then be published on the ECCE12 & ECAB5 website.

The PSC will start with the registration to the event, much earlier of the event opening, and will end with the proclamation of the winner of the competition the last day of the conference.

The results of the participant simulations will be published in real time and will be accessible through a link on the website. Each participant may improve his/her position in the simulation competition introducing some modifications of the variables.

Gabriele, what is the final message to the future participants?

Our team will be there to welcome you in Florence to develop together a bridge between Science and Technology!

Gabriele Verrecchia, the former President of AIDIC Giovani, the young engineers working group in Italy, and current member of AIDIC executive committee, is the Coordinator of the ECCE12 & ECAB5 Student Committee, that will organize and manage the Program.

Watch out for further information coming soon at: <https://aidic.it/ecce12/youngprogramme.php>

EFCE calls for nominations

The following call for applications is still open:

• Student Mobility Award 2019

Deadline for submission of applications: extended to 15 April 2019

Sponsored by BASF SE

Website: http://www.efce.info/Student_Mobility_Award.html

EFCE Student contest on Drying: "Drying: ideas and challenges for a sustainable world"

This international competition is organised for the first time by Politecnico di Torino jointly with the EFCE Working Party on Drying, as a side-event of EuroDrying'2019, held in Torino, Italy on 10-12 July 2019 (<https://www.eurodrying2019.com/>).

It addresses to advanced undergraduates (Master programs), Master and Ph.D. students and aims to stimulate innovative ideas for applications in the area of drying for sustainable food, energy and environmental processes: "Drying: ideas and challenges for a sustainable world".

Students are invited to submit their proposal (maximum three pages) with a technical description of the idea, significance of the application, details of the drying methodology and final goals.

Participating teams will include a maximum of four members and must identify a faculty member at their University who will act as mentor and point of contact with respect to the organizing committee

The best ideas will be presented in a special event preceding the conference on July 10, 2019, and the winners will have the opportunity to give an oral presentation as guests in a special session of the conference, where the award ceremony will take place.

Details for submission is available at: <https://www.eurodrying2019.com/uk/page.asp?PID=100>

Deadline for proposal submission: 30 May 2019



2nd European Forum on New Technologies – Digitalisation in Chemical Engineering

Frankfurt, Germany, 1 March 2019

Report by the EFCE Scientific Vice President, David Bogle

Digitalisation has the potential to change the way we work in Chemical Engineering. In particular it is likely to change the way the process industries work with the potential of big data and its analysis making the operations and the supply chain much more responsive. It could also significantly change the innovation process in developing new products and processes.

An EFCE event took place in Frankfurt on 1st March to hear some visionary industrial and academic speakers to discuss the potential effects of digitalisation and to consider the challenges and opportunities. One objective was to see how the EFCE and its Working Parties and Sections might work together to address the challenges.

The programme was in four parts. The Vision for Digitalisation in the Process Industries; The Potential of Digitalisation; The Role of Digitalisation across the Life Cycle: in R&D, Design and Operations. The final section was a round table discussion of challenges and opportunities.

Vision for Digitalisation in the Process Industries

Hergen Schultze from BASF opened the session presenting how BASF see the value of Digitalisation, and in particular Artificial Intelligence (AI) in research for manufacturable new materials with precise properties using the development of a new coating as an example. Digitalisation provides the opportunity for efficient and generic procedures to optimise the

research and development process particularly given the amount of uncertainty and noise. The big challenges are in the volume of data, the variety of forms of data, and its veracity.

Martin Winter from CEFIC outlined how digitalisation could transform our operations across the whole supply chain. The sector is behind other manufacturing sectors and we are noticing a significant step up in R&D in China. Great value can be obtained from advanced analytics particularly in manufacturing operations. Horizon Europe is expected to be an evolution rather than a revolution and will likely offer R&D investment of €15Bn of Digital and Industry, and €9.1Bn for the Digital Europe Programme. CEFIC is a partner in the A-SPIRE partnership with the EC in shaping the Commission's Research Programme. EFCE is also a member of A-SPIRE and of CEFIC's SusChem Sustainable Chemistry platform.

We then heard from Sebastian Carsch (Fraunhofer IVV) about developments in the food industry, often seen as a leader in this domain given its links from farm through manufacturing to the consumer in the shops. The food manufacturing sector has a data intensive platform getting stated 95-99% efficiency although it seems that true efficiency is really 60-70% due to missing process understanding and the very variable raw materials. The industry is looking hard at how to empower unique human skills combining machine learning with human experience. Perhaps the best quote of the day, which came from Elon Musk, was 'humans are underrated'!

The Potential of Digitalisation

Michel Dumontier is Distinguished Professor of Data Science at Maastricht University. Data is the 'world's most valuable resource' and he highlighted examples such as Amazon Go and precision medicine. We need to better link humans and AI (he gave deepdreaminnovator.com as an example). How can our community benefit? He raised a series of issues that we should consider as we develop and exploit data science: identify theft, job substitution, ensuring appropriate technical infrastructure (including FAIR data), the future of education, and how we can establish scalable governance and flexible consent to underpin responsible use of Big Data.

Frode Brakstad (SINTEF) outlined some developments in the use of data analytics and ensuring data quality in the process industry. Unintentional variation is still normal in the process industry. Understanding the root cause is vital and he gave examples showing how data is only valuable when you get insights from the data. There are many challenges around how to ensure the quality of data driven models: missing measurements, missing time lags, and where data is heavily correlated which is often overlooked. The industry of the future will be using big data, smart analytics etc. leading to cognitive plants and tighter interactions in the circular economy.

Representing Siemens, Maurizio Rovaglio gave us a tour of their digital asset portal enabling connectivity and availability of data, asset predictive analytics helping with predictive maintenance leading to 'physics based analytics'. He showed us how this has been used for a challenging problem: the submersible mobile offshore ultra deep water drilling unit.

The chair of the EFCE Energy Section, Francois Maréchal, spoke about the use of smart energy systems particularly in the built environment. This gives opportunities for co-ordination of prediction, pooling, control (particularly model-predictive control) and access to the grid market. Many new technologies are on the horizon including microgrids for decentralised systems and blockchain. The industry is aiming for better systems integration, circular economy concepts, and industrial symbiosis. Energy systems are likely to move towards more open data, shared databases, shared models and the use of AI within integrated renewable energy systems.

The Role of Digitalisation across the Life Cycle: in R&D, Design and Operations

Georgios Tetradis-Meris from Unilever explained

how R&D is moving away from traditional linear ways of working. Drivers include the speed of information availability, consumer demographics and trends, increasing costs of raw materials and increasingly global supply chains for some products. Seamless execution and speed to market are critical to business. Digitalisation of R&D enables speed and must embrace all functions. Collaborative working, with internal and external partners, is enabled. This allows capture of structured data, integration of scientific knowledge, and exploitation using predictive models. Digital twins are becoming common especially in process and packaging.

Digital technologies are being used, particularly in design, to change the business model according to Costas Pantelides of PSE Ltd because of increasing competitive pressures. Model based engineering across the life cycle allows engineers to perform individual tasks better, to exploit deep process knowledge, leverage off-line modelling efforts, perform tasks not amenable to first principles modelling, combine tasks, integrate workflows, and to perform tasks previously computationally infeasible. There is much to be gained by using deep knowledge. General digital applications platforms are necessary and feasible but there is work to do. Visualisation is key.

Christoph Herwig, the chair of the EFCE WP on Quality by Design, explained of the need for holistic control strategies for the whole life cycle of the production and distribution process. There will be issues arising from data fusion and data integrity. Blockchain technology will be useful to help assure data integrity. Knowledge management using a systematic approach to acquiring, storing and disseminating information is important and can be enabled by new digital technologies and algorithms. Model centred tools, using digital twins, will enable better design of experiments with adaptive dynamic exploration of uncertainty identifying process parameters that are holistically critical. Increasing automation of model generation and data analytics means engineers must work increasingly in symbiosis with AI.

Our last speaker, Nilay Shah from Imperial College, told us of increasingly integrated supply chains in the process industry requiring decision support tools for planning and operation. The flexible multipurpose plant of the future will be highly automated, optimised, and customised. The process industry is mostly B2B but with a need to better understand and know customer demands. Opportunities for better working include integration and seamless use of data and models, integration across the lifecycle,

integration between real time planning and scheduling, real time optimization of the supply chain, adaptive optimisation and customisation, and incorporation of analytics to reduce testing and improve quality and responsiveness.

New pressures include becoming more service oriented, vendor managed inventory expectations, more rapidly changing market circumstances, mass customisation, improving and reporting on sustainability, and the ability to anticipate and respond to future regulation and compliance.

Challenges and Opportunities

The discussion ranged across technology, motivations, and threats.

New tools are still needed: for example how to combine first principles models with machine learning models, how to manage different time and length scales, and how to combine different data sources which depends on context and alignment. Are the tools suitable for both for process and for product design? How do we use AI to create first principles models – to enhance understanding and to generate high level conclusions? We need to ensure the safety of workers in the new AI enhanced world. Many IT hurdles exist making it difficult for software products to communicate. We need standards for the sharing of data and metadata. Are there lessons to be learned from digital Chemistry and Biochemistry or other domains?

It was felt that we need better experience and guidance about how best to identify the best tool for specific engineering problems. There were many different ideas about what is

appropriate for development and what training is required for future Chemical Engineering professionals which requires further discussion.

Next Steps

The potential is huge and the changes are coming. It is clear that we have some experience in industrial practice and in the research and development done by academic and industry to support. However there is much to be done by our community and opportunities to work together to test existing technology, to devise clearer ideas on what is needed, to influence public and private agencies, and to undertake the research, and to demonstrate and stress test new technologies and approaches.

We had representation from the following EFCE Working Parties and Sections: Mixing, Energy, Product Design & Engineering, Fluid Separations, Computer Aided Process Engineering, Quality by Design, Education, Chemical Reaction Engineering, Sustainability, Multiphase Fluid Flow, Crystallisation, and Thermodynamics and Transport Properties with apologies from others.

EFCE's involvement with A-SPIRE gives us the opportunity to shape the European Commission research priorities but also to find new partnerships to develop ideas and proposals and to carry them out. As Scientific Vice President I aim to help support the development of such networks and to help our community to shape the technology agenda to meet the needs of the process industry in the future.

As far as possible, the presentations of the speakers are available on the event website at:

https://efce.info/European_Forum.html

Events organised by or on behalf of EFCE in 2019/21

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

17th European Meeting on Supercritical Fluids and 7th European Meeting on High Pressure Technology

High Pressure Process Technology
Ciudad Real, Spain, 8-11 April 2019
(EFCE Event No. 759)

The International Society for Advancement of Supercritical Fluids (ISASF) and the Organizing Committee of the 17th European Meeting on Supercritical Fluids (EMSF), including the EFCE Working Party on High Pressure Technology, welcome you to Ciudad Real. This is the 17th of a fruitful series of meetings, where Scientists, Students and Industry Partners discuss current developments and innovations based on the extraordinary properties of supercritical fluids.

Plenary speakers: Dr. Gerd Brunner, Dr. María José Cocero, Dr. Jerry King, Dr. Thomas Müller

Sponsors: Mervilab, Pisa, Parker, Waters, UCLM, DIQ

Register now!

Website: <https://eventos.uclm.es/16387/detail/17th-european-meeting-on-supercritical-fluids-emsf-2019.html>

2nd International Process Intensification Conference – IPIC2

Leuven, Belgium, 27-29 May 2019
(EFCE Event No. 760)

Process intensification is transforming chemical engineering processes and plants. New targets replace traditional guidelines in process design: substantial improvement of the equipment size/production ratio and severe reduction of energy consumption and waste generation. **IPIC2** will be an excellent opportunity to learn about recent implementations in industry, the latest advances in research, and the current offer from technology providers. Furthermore, discussions on the state of the art and future perspective of process intensification will keep you updated on future trends. We specifically reach out to our colleagues in other continents to build a global PI community.

Themes: Batch to Continuous; Energy

Activation for Processes and Materials; Multifunctional Reactors and Hybrid Separators; Modular Processes; Microreactors; 3D Printing and Process Intensification; Novel Process and Equipment Concepts; Modelling and Control of Intensified Processes; Scale up and Industrial Implementation.

Register now. Deadline for early bird registration: 15 March 2019

Website: <https://kuleuvencongres.be/ipic2019>

23rd Polish Conference of Chemical & Process Engineering

Jachranka-Warszawa, Poland,
2-5 June 2019 (EFCE Event No. 753)
Theme: Scientific and industrial progress for sustainable processes and products

The current 23rd edition of this conference, organised by the Faculty of Chemical and Process Engineering of the Warsaw University of Technology under auspices of the Committee of Chemical & Process Engineering of the Polish Academy of Sciences, will be held in Jachranka, the small resort located close to Warsaw on the shore of the artificial lake – Zalew Zegrzyński.

Topics: Advances in Chemical Engineering Fundamentals; Chemical reaction engineering – Novel Experimental Approach, Modelling and Optimization; Product Design and Novel materials application; Bioengineering and Biotechnology; Environmental & Sustainable Chemical Engineering; Chemical Industry 4.0.

Register now!

Website: <http://ichip2019.pl>

Loss Prevention 2019 – 16th International Symposium on Loss Prevention and Safety Promotion in the Process Industries and accompanying exhibition

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

Loss Prevention 2019 is organised by the EFCE Working Party on Loss Prevention, has returned to the Delft University of Technology in the Netherlands.

Topics: Risk assessment and safety

management; Human and organisational factors of risk and safety; Process safety engineering and technological innovations; Fires, explosions, and toxic releases; Simulation and modelling for safer processes; Physical security and cyber security in process plants; Learning from accidents and process safety education; Communication of risk and process safety information; Leadership, risk governance, and regulatory issues.

To foster new ideas, the fourth EFCE Excellence Award in Process Safety for outstanding PhD research work will be presented at this conference.

Sponsors: Silber sponsors: OCI Nitrogen, DSM; Bronze Sponsors: Shell, Total, TÜV Süd.

Register now!

Website: www.lossprevention2019.org

29th European Symposium on Computer Aided Process Engineering - ESCAPE29

Eindhoven, The Netherlands, 16-19 June 2019 (EFCE Event No. 758)

ESCAPE-29 is organised under the auspices of European Federation of Chemical Engineering, Nederland Procestechologie (NPT), and Process Systems Engineering NL (PSE-NL).

ESCAPE-29 aims to bring together researchers and practitioners of computer-aided process engineering (CAPE) community, and provide a forum to present and evaluate emerging research methods and concepts, and to learn from industrial case studies. The boundaries of CAPE have expanded and the research interests cover a wide range of interdisciplinary problems related to the current needs of the modern society and industry.

Themes: Process-product synthesis, design and integration; Methods, models and computational tools for PSE; Process control and operations; CAPE/PSE in sustainable development and food industry; CAPE/PSE in energy transition; CAPE/PSE in hi-tech micro/nano-devices and processes; Education in CAPE/PSE & knowledge transfer.

Plenary Lecturers: Prof. Zoltan Nagy, Purdue University, USA; Prof. Megan Jobson, The University of Manchester, UK.

Sponsors: Shell, BASF, PSE, DOTX, Corbion.

Register now!

Website: <http://escape29.nl/>

3rd ANQUE-ICCE International Congress of Chemical Engineering

Santander, Spain, 19-21 June 2019 (EFCE Event No. 757)

Theme: Building Bridges in Chemical Engineering

ANQUE-ICCE 3 will be organised by ANQUE, the Spanish National Association of Chemists and Chemical Engineers, in collaboration with AQUIQÁN, the Association of Chemistry and Chemical Engineering of Cantabria. This international congress aims to be a reference in the field of chemical engineering and chemistry applied to the industry. All key areas for chemical engineers will be included in the program, providing ample opportunities to exchange up-to-date information and extend professional and personal networks. The congress incorporates the specific event "1er Congreso Iberoamericano de Ingeniería Química".

The "ICCE Student Conference", which is a unique opportunity to join together chemical engineering students, with a variety of activities and competitions that will be useful for their training, will be held on 17-18 June 2019

General ICCE3 Topics: Knowledge, Education & Training; Unit Operations & Separation Processes; Chemical Reaction Engineering; Process Systems Engineering; Product Engineering & Advanced Materials; Applied Biotechnology; Environmental & Sustainable Chemical Engineering.

Symposia: Lignocellulosic wastes valorization; Bioeconomy: renewable resources for energy and chemicals production; Sustainable Development Goals: a challenge for Chemical Engineering.

Workshops: Mitigation of the environmental impact of fluorinated gases; Renewable Hydrogen Energy World.

The call for papers is open!

Deadline for abstract submission: extended to 17 April 2019

Website: <https://anque.es/congresos/>

7th European Drying Conference – EuroDrying'2019

Torino, Italy, 10-12 July 2019 (EFCE Event No. 762)

Motto: Drying for better life: food, pharmacy and art

The Politecnico di Torino is proud to host the 7th edition of the European Drying Conference. The Conference series is supported by the Working Party on Drying (WPD), within the framework of the EFCE. The Conference deals with cutting-edge research in drying field, enabling researchers and technicians to exchange ideas and innovation on drying methods, modeling and applications.

Main topics: Fundamentals of drying; Modelling and simulation; Physical properties; Chemical, ceramic, textile and polymer materials; Food and agricultural materials; Pharmaceutical and biomaterials; Measurements and process control; Industrial processes and equipment; Innovative technologies; Energy and environmental implications; Cultural heritage and art

Participants from Industry can also select the "Special industrial section" option.

The Conference proceedings will be published as ISBN book; in addition it is planned to publish the selected papers in *Drying Technology Journal*.

Register now.

Website: www.eurodrying2019.com/

16th European Congress on Comminution and Classification - ESCC 2019

Leeds, United Kingdom, 2-4 September 2019 (EFCE Event No. 761)

The next European Symposium on Comminution & Classification (ESCC) will take place at the University of Leeds, UK, and is organised on behalf of the EFCE Working Party on Comminution and Classification.

ESCC is a focussed forum in which you have the opportunity to discuss current trends in this area and learn from other industries and can transfer knowledge to your own applications.

Conference topics: Size reduction and classification related to energy technologies, pharmaceuticals, foods, minerals, and chemicals; Mechanochemically, bulk and surface transformations; Modelling across length scales; Wear, erosion, and contamination; Innovations in milling and classification process and equipment; Nano-milling; Enabling technologies; Fundamentals of fracture.

Plenary Speakers: Prof. Arno Kwade, Germany; Dr. Michael Juhnke, Switzerland; Prof. Malcolm Powell.

Registration will open in due course.

Deadline for early bird registration:

1 June 2019

The abstract submission is open.

Deadline: extended to 28 February 2019

Website: <http://www.escc2019.com>

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

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

Website: www.ecce12-ecab5.org

7th Symposium on Product Design and Engineering

Florence, Italy, 15-19 September 2019, in conjunction with ECCE12 & ECAB 5 – see above

CHEMCON-2019

72nd ANNUAL SESSION of the INDIAN INSTITUTE OF CHEMICAL ENGINEERS

New Delhi, India, 16-19 December 2019 (EFCE Event)

The 72nd Annual Session of the Indian Institute of Chemical Engineers (IICChE) will be organised at Indian Institute of Technology Delhi (IITD), New Delhi from 16th to 19th December 2019 by Indian Institute of Chemical Engineers (Northern Regional Centre) in association with Chemical Engineering Department, IIT Delhi, Indian Oil Corporation Limited (IOC) and EFCE.

CHEMCON 2019 will provide a platform to the delegates from process industries, R&D organisations, consultancy firms and educational institutions to share their new research ideas and technical developments in chemical engineering and other disciplines of science & engineering, leading to upgradation of their professional skills and harnessing knowledge in various related fields.

CHEMCON 2019 includes a half-day Indo-European symposium. Further, the leading personalities in the field of Chemical Engineering from academia and industry, from India, Europe and other countries will make plenary technical presentations on their subject of expertise and relevant to the theme of various technical sessions. More than five hundred abstracts from professionals from various countries are expected to make oral and poster presentations highlighting different aspects of the current and emerging technologies.

Topics: Advanced Techniques in Bio-production, Bio-Separation & Bio-Detection (Biosensors); Biomass and Renewables; Catalysis and Reaction Engineering; Computational Fluid Dynamics; Electrochemical Processes; Fertilizers; Fluid Mechanics; Food Engineering; Green Technologies; Hydrocarbons; Hydrogen Energy and Fuel Cells; Instrumentation

and Process Control; Materials of Construction; Modelling and Simulation of Processes; Nanotechnology; Novel Separation Processes; Particle Technology; Polymer Engineering and Technologies; Process Intensification; Process Scheduling; Production of Chemicals; Safety, Health and Environment; Solid Waste Management; Thermodynamics; Transport and Interfacial Phenomena; Upstream and Downstream Petroleum Processes; Wastewater Treatment.

The call for papers is open! Deadline for abstract submission: 31 May 2019

Website: <http://www.chemcon-2019.com>

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

Crystallization occurs in many natural physical, biological, and chemical systems, and is exploited in numerous applications, ranging from novel environmental and purification technologies to the production of bulk and fine chemicals, as agrochemicals, pharmaceuticals, food ingredients and pigments. Active research is done on a broad range of subjects from fundamentals to industrial applications resulting in new findings, innovative processes and products. The ISIC meetings, taking place every three years, aim to provide a broad overview of the current science and technology of crystallization and, to bring together scientists

and engineers of various disciplines, both academic and industrial, from all over the world to meet and exchange ideas. The symposium, initiated by Jaroslav Nývlt in 1960, is organized under the auspices of the EFCE's Working Party on Crystallization since 1978 and, has become the premier international conference in the field of industrial crystallization.

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

The call for papers will open in September 2019.

Website: www.dechema.de/ISIC_21

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

Berlin, Germany, 19-23 September 2021 (EFCE Event)

Save the date!



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