European Congress of Chemical Engineering – 6

Copenhagen, 16-20 September, 2007

TECHNICAL PROGRAM BOOK

EFCE Event Number 669

September 2007

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Welcome to Copenhagen. It is a pleasure for us to offer you an exciting technical program consisting of plenary lectures, keynote lectures, oral presentations and posters as well as the beautiful scenes and sights of Copenhagen and Denmark. The objective of ECCE-6 is to provide engineers, scientists, researchers, technologists, students and others to present their latest results, to interchange ideas, to make new contacts, to establish new collaborations and many more.

The ECCE-6 technical program consists of topics organized under 6 main themes, covering the full spectrum of chemical engineering practice, including current trends and future needs. In addition, there are special invited sessions on "multiscale modelling", "energy issues" and "biotechnology", which also honors the contributions of Professor John Villadsen to this topic. In addition, there is a workshop on education on "The Future of European Chemical Engineering Education in a Globalized World", and, special sypmosiums on Process Intensification (EPIC-1: 1st European Process Intensification Conference), Innovations in Food Technology (LMC Congress), Chemical Product Design and Engineering (CPD&E), and, Environmental Protection & Sustainability (EP&S). There will be a total of 142 sessions during the duration of ECCE-6.

ECCE-6 is the 669th event of the EFCE. We are also happy to announce that it is a cosponsored event of the AIChE.

During ECCE-6, there will be several receptions, starting with the welcome reception on Sunday that is sponsored by Haldor Topsøe A/S from Denmark. The reception takes place at the Foyer of the conference venue from 17.30 hours. On Monday evening (starting from 17:45 hours), Elsevier invites you to a reception, while the Mayor of Copenhagen invites you to a reception at the "Town Hall" on Tuesday (limited to 600 participants only).

Please remember to visit the exhibition booths. We have kept sufficient free time in the otherwise busy programme to allow you time to visit the exhibitors. There are 28 exhibitors covering a wide spectrum of products.

We extend our thanks to the presenters and authors, to the participants, to the international scientific committee members, to the steering committee members, and to the many helpers (the "local" organization committee members, students, colleagues). We thank personnel from Bella Center and NHG for their help in various aspects of the organization of ECCE-6. We take this opportunity to also thank our sponsors.

Please enjoy your time in Copenhagen and Denmark. We hope that you will find ECCE-6 interesting, motivating, exciting, and, good value for your valuable time and money.

Sincerely,

Rafiqul Gani & Kim Dam-Johansen
Department of Chemical Engineering
Technical University of Denmark
DK-2800 Lyngby, Denmark

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Department of Chemical Engineering, DTU

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Theme-Coordinators:

Theme	Theme Title	Coordinators
1	Sustainable process-product development through green chemistry	A. Kraslawski (SF)
2	Advancing the chemical engineering fundamentals	O Hassager (DK), J Drahos (CZ)
3	Multi-scale and/or multi-disciplinary approach to process-product innovation	J-C Charpentier (FR)
4	Systematic methods and tools for managing the complexity	E N Pistikopoulos (UK), B Braunschweig (F)
5	Integration of life sciences & engineering	J Villadsen (DK), F Muller (UK)
6	Educating chemical engineers for coming challenges	M Molzahn (DE)/ D Bogle (UK)

Chair-persons for Special Symposiums:

Symposium	Title	Coordinators
S1	Energy Issues	E H Stenby (DK)
S2	Multiscale Modelling	R Gani (DK)
S3	Biotechnology – Honouring Prof J Villadsen	K V Gernaey (DK)
S4	EPIC-1: 1st European Process Intensification Conference	A. Stankiewicz (NL) A Gorak (DE)
S5	Innovations in Food Technology	A Friis (DK)
S6	The Future of European Chemical Engineering Education in a Globalized World	M Molzahn (DE)
S7	Environmental Protection & Sustainability	B Kawalec-Pietrenko (PL)
S8	Chemical Product Design and Engineering (CPD&E)	M E Vigild (DK), A A Broekhuis (NL)

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Gernaey, K	DK		Korea	Ulrich, J.	DE
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Gorak, A.	DE		Kong	Von Rohr, P. R.	CH
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Hangos, K.	HU	Nordkvist, M.	DK	Wild, G.	FR
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More information on the European Federation of Chemical Engineering (EFCE) can be found at: http://www.efce.info/

The Danish Society of Engineers, IDA

The Danish Society of Engineers, IDA, is a modern professional association for engineers and other specialist groups working within engineering and technology – at IDA, we call them technical knowledge workers. IDA has more than 62,000 members.

IDA's vision is to help technical knowledge workers set the agenda via competence development, network establishment and political influence.

IDA's goal is to be an influential, high profile society. Several politically appointed committees ensure that the views and objectives of our society become known and are made visible in areas ranging from education policy, equal opportunity, industrial and labour market policies, work environment and research and technology.

Legal queries
IDA looks after the interests of employees, managers and the self-employed in all legal matters concerning remuneration and employment contracts. IDA provides advice and guidance on work and employment conditions by answering members' queries on salary issues, employment contracts and other legal matters.

Knowledge sharing
IDA amasses and proliferates knowledge. IDA strives to ensure that members specialist competences are maintained and strengthened though various activities. IDA hosts a number of specialist societies and groups, covering all spheres of technology and policies pertaining to technology.

Member perks
IDA offers several attractive insurance schemes and nationwide discounts via the members' shop. IDA's services are available throughout Denmark from its offices in Copenhagen, Odense, Århus and Aalborg. The environment-friendly head office in Copenhagen is a combined conference centre and administration building.

The Danish Society of Chemical Engineers
The Danish Society of Chemical Engineers is a specialist society within IDA which maintains a network of about 4,700 members with a general interest in chemical engineering. The society organises technical meetings and educational seminars for the members.
The Danish Society of Chemical Engineers is also the official contact between IDA and the EFCE.

Lars Bytoft
President of the
Danish Society of
Engineers, IDA

Peter Szabo
President of the
Danish Society of
Chemical Engineers

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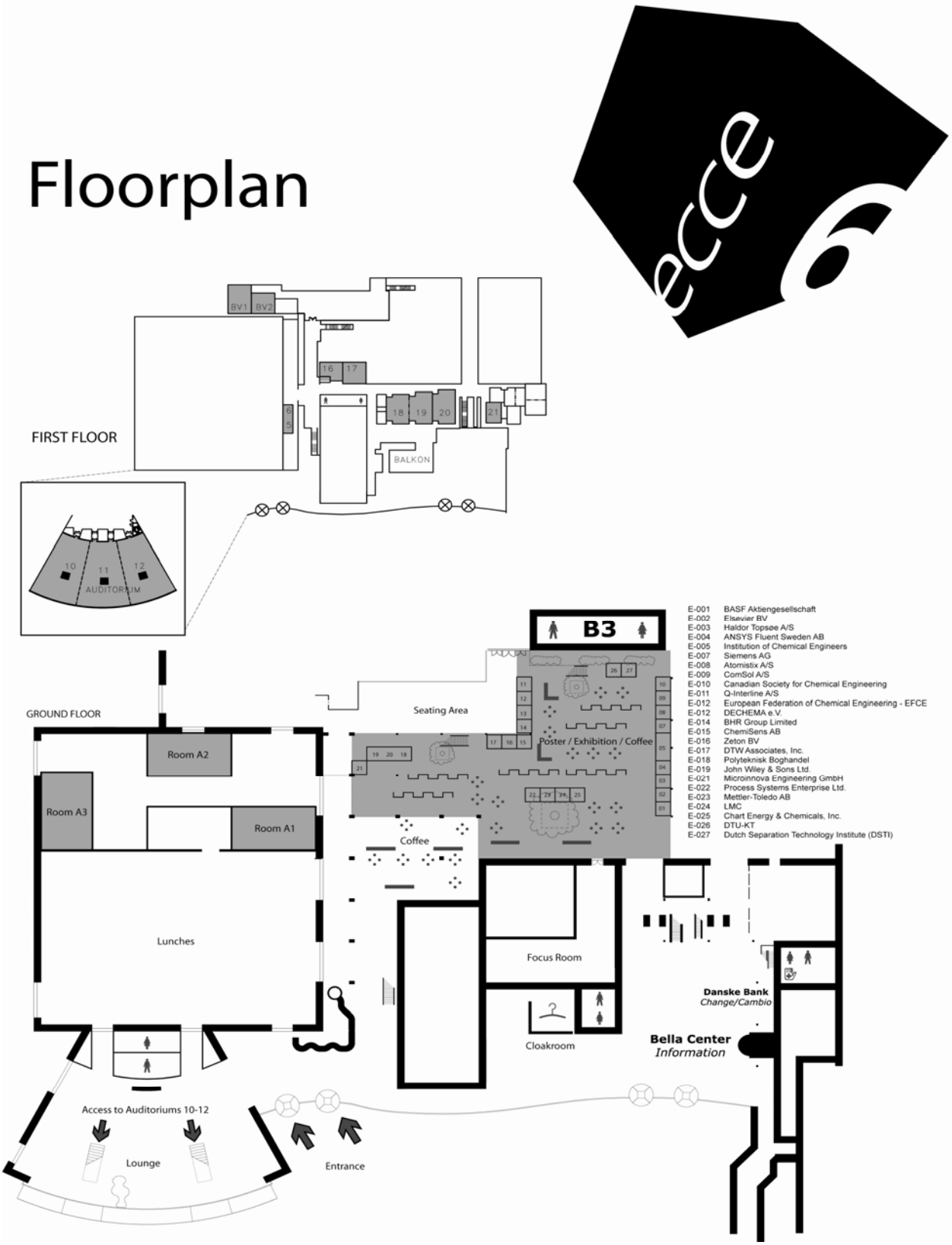


PLENARY SPEAKERS

Mr. Achim Noack, Managing Director, Bayer Technology Services GmbH, Germany

"Making technology work for the benefit of the modern society"

Monday 17 September 09:05-09:55
Auditorium 10-12

Professor John Perkins, Vice President & Dean of Physical Sciences & Engineering, Manchester University, United Kingdom

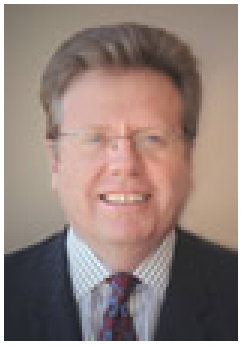
“Chemical Engineering - Whatever Next?"

Monday 17 September 09:55-10:45
Auditorium 10-12

Mr. Per Falholt, Chief Scientific Officer, Novozymes, Denmark

"Chemical Engineering and the impact on White Biotechnology"

Wednesday 19 September 08:45-09:35
Auditorium 10-12



Professor Matthew Tirrell, University of California-Santa Barabara, USA

"Chemical Processing by Self-Assemby: Let's Take It Seriously"
(Danckwerts Lecturer 2007) - nominated by AIChE and sponsored by Elsevier

Wednesday 19 September 09:40-10:30
Auditorium 10-12

KEYNOTE LECTURES

Theme 1: Sustainable process-product development through green chemistry		
Dr Pierre le Theis	CO2 form capture to storage	IFP, France
Prof Krzysztof Warmuzinski	Harnessing methane emissions from coal mining	Polish Academy of Sciences, Poland
Dr. Martin Østberg	Autothermal Reforming - development of state of the art syngas technology for advanced fuel production	Haldor Topsøe A/S, Denmark
Prof Nazmul M Karim	Biofuels: Myths and Reality)	Texas Tech University, USA
Theme-2: Advancing the chemical engineering fundamentals		
Prof Doros N Theodorou	Prediction of physical properties of polymers through hierarchical simulations	National Technical University of Athens, Greece
Prof Matthew J Jones	Is Industrial Crystallization a Suitable Process for Protein Purification? – A Survey	Martin-Luther-Universität Halle-Wittenberg, Germany
Prof Jaap Schouten	New solid foam reactor packings for multiphase applications	Eindhoven University of Technology, Netherlands
Prof Enrico Drioli	Progresses on Seawater Desalination and Wastewater Treatment in the Logic of Process Intensification Strategy	Institute on Membrane Technology, Italy
Theme-3: Multi-scale and/or multi-disciplinary approach to process-product innovation		
Prof Dibakar Bhattacharyya	Functionalized Microporous Membranes and Bimetallic Nanoparticle Synthesis for Environmental Applications	University of Kentucky, USA
Mr Neville LN Brewis	Integration of Chemical Engineering Science into Pharmaceutical Process Research and Development	AstraZeneca, UK
Prof Juan J de Pablo	Field Driven Assembly in Nanotechnology	University of Wisconsin, USA
Prof Ka M Ng	Expediting Product and Process Development with Workflow	Hong Kong University of Science and Technology, Hong Kong
Theme-4: Systematic methods and tools for managing the complexity		
Prof Julian Morris	Process Performance Monitoring – Towards Model Based Approaches	Newcastle University, UK
Dr Andreas Bode	Industrial Process Systems Engineering: Identification and Realization of Economic Potentials	BASF Aktiengesellschaft, Germany
Dr Lars von Wedel	Knowledge engineering in CAPE systems - Can chemical engineers finally get around programming ?	AIXCAPE, Germany
Prof Stratos (E N) Pistikopoulos	Energy Systems Engineering – an integrated approach for the energy systems of the future	Imperial College London, UK
Prof Venkat Venkatasubramanian	Drinking from a Fire Hose: Cyberinfrastructure Methods and Tools for Managing Information Overload and Complex Decision-Making in Molecular Products Design and Engineering	Purdue University, United States of America
Dr M Pons	Update on CAPE-OPEN standards and CO-LaN activities	CAPE-OPEN Laboratories Network, France
Theme-5: Integration of life sciences & engineering		
Prof Wolfgang Wiechert	Modeling and Simulation of Cellular Networks: Different Approaches for Different Problems	University of Siegen, Germany

Prof John Woodley	Biocatalytic synthesis of a biodegradable chelant (S,S-EDDS)	Technical University of Denmark, Denmark
Theme-6: Educating chemical engineers for coming challenges		
Prof Sebastião Feyo de Azevedo	Towards the European Higher Education Area: Curricula and Methods in Chemical Engineering	Univesridade do Porto, Portugal
Invited Session on MultiScale Modelling (S-1)		
Dr Philippe Ungerer	From molecular simulation to thermophysical properties : can we bridge the gap between the nanoscale and process scale ?	IFP, France
Prof Ian Cameron	Powders, Particles and Processes: Multiscale Approaches for Improved Performance	The University of Queensland, Australia
Prof Jean-Claude Charpentier	The necessary multi-scale and multidisciplinary approach of a modern chemical engineering for product design and engineering in the frame of globalization, sustainability and technical innovation	CNRS/ENSIC/INPL, France
Dr Martin Wolf	Industrial application of modeling for different processes	Bayer Technology Services GmbH, Germany
Invited Session on Energy Issues (S-2)		
Prof Wolfgang Arlt	Mimizing the energy demand of CO2-capture in conventional power stations	Universität Erlangen-Nürnberg, Germany
Prof Jim Petrie	Multi-Criteria Decision Making within Energy Networks for Electricity Production in Emerging Markets	University of Sydney, Australia
Dr Bradley Ladewig	A technological analysis of PEM and SOFC fuel cell systems for residential CHP applications	CNRS-ENSIC, France
Mr Gelein de Koeijer	An Oil and Gas Company's Perspective on Energy Supply and CO2 Capture & Storage	Statoil ASA, Norway
Invited Session on Biotechnology: Honoring Prof. John Villadsen (S-3)		
Prof John Villadsen	Bioreaction Engineering: A discipline striving for independence)	Technical University of Denmark, Denmark
Dr Toshiyuki Kanamori	Process Integration onto Biochip Utilizing Novel Materials	National Institute of Advanced Industrl Science and Technology, Japan
Prof Jens Nielsen	The role of chemical engineering in modern biotechnology	Technical University of Denmark, Denmark
Prof Anne S Meyer	Kinetic phenomena in the enzymatic hydrolysis of wheat arabinoxylan	Technical University of Denmark, Denmark
Prof Matthias Reuss	A structured-segregated approach for modeling the dynamics of microbial populations in the three-dimensional turbulent field of a stirred-tank bioreactor	University of Stuttgart, Germany
Symposium - EPIC-1: European Process Intensification Conference – 1		
Prof Klavs F Jensen	Chemical and biological microsystems for discovery and scaling to production	Massachusetts Institute of Technology, USA
Prof Jan Harmsen	Reactive Distillation: The front-runner of Industrial Process Intensification	Shell Global Solutions, The Netherlands
Symposium - Environmental Protection & Sustainability		
Prof Michael Narodoslawsky	Sustainable Processes – The Challenge of the 21st Century for Chemical Engineering	TU-Graz, Austria
Prof Angel Irabien	Sustainability Integration In Chemical Process Engineering	Universidad de Cantabria, Spain
Symposium on Chemical Product Design and Engineering (CPD&E)		
Dr Khadija Schwach-Abdellaoui	Development of a new biosynthetic hyaluronic acid for enhanced skin moisturization and anti-aging	Novozymes Biopolymer A/S, Denmark
Prof Jacques W M	The Mechanism Of Adhesion Between Tyre-	University of Twente,

Noordermeer	cords And Rubber, As Governed By Interfacial Phenomena	The Netherlands

Symposium – Innovations in Food Technology (LMC Congress)

Thomas Olsson	Innovations in Food Technology from 1970 - 2030	SIK, Sweden
Prof Peter Fryer		University of Birmingham, UK
Mr Andrew Morgan	Bioprocessing in Health and Nutrition	Vice President, Technology and Business Development, Danisco, USA
Prof Willem de Vos	Innovations in Food Fermentations and Safety	Wageningen University, NL
Prof Hørdur Arnarson	Advanced Fish Processing Methods. Revolution or Evoluation?	Marel, Iceland
Prof Rasmus Bro	Why PAT is needed to achieve quality?	University of Copenhagen, Denmark

SPECIAL SYMPOSIUMS

- **Special Symposium - EPIC-1: European Process Intensification Conference – 1**

  Organized by the EFCE Working Party on Process Intensification (Prof A Stankiewicz & Prof A Gorak). All sessions of this symposium takes place on 19-20 September.

- **Special Symposium - Innovations in Food Technology (LMC Congress)**

  Organized by LMC, Denmark (with Lisbeth Munksgaard, LMC-DK as the congress chair) and sponsored by: Arla Foods (DK), Christian Hansen A/S (DK), Danisco A/S (DK), Foss (DK), Lantmannen Schukstad A/S (DK), Novozymes A/S (DK), Unilever (DK), Marel Food Systems A/S (DK). All sessions of this symposium takes place on 19-20 September.

- **Special Symposium - Environmental Protection & Sustainability**

  Organized by the EFCE Section on Environmental Protection & Sustainability (Prof B Kawalec-Pietrenko). All sessions of this symposium takes place on 17-18 September.

- **Special Symposium on Chemical Product Design and Engineering (CPD&E)**

  Organized by the EFCE Section on Chemical Product Design and Engineering (Prof A A Broekhuis & Prof M E Vigild). All sessions of this symposium takes place on 19-20 September.

Workshop on "The future of European chemical engineering education in a gloablized world"

The Future of European Chemical Engineering Education in a Globalized World

Program

Chair: M. Molzahn, Weisenheim/DE, S. Feyo de Azevedo, Porto/PT

9:00	Welcome and introduction	
9:05	Opening address	L. Pallesen, Technical University of Denmark, DK
9:20	The chemical industry in 2030	O. Sparrow, The Challenge Network
10:10	Frontiers in Chemical Engineering Education	R. C. Armstrong, Massachusetts Institute of Technology, USA
11:00	The chemical engineer – a glorified plumber" or the molecular engineer of the future?	K. Harg, Hydro Oil and Energy, Hydrogen Technologies, NO
11:25	Chemical Engineering Education in Europe – an industrial perspective	M. Strohrmann, BASF AG, Process Engineering, Ludwigshafen/DE
11:50	Chemical Engineering in the Pharmaceutical Industry of tomorrow	A. Zilian and B. Schenkel, Novartis Pharma AG, Basel/CH
12:15	Discussion 1	
14:00	Trends in Chemical Engineering Education in the Far East	D. C. Shallcross, University of Melbourne/AUS
14:25	Trends in chemical engineering education in Central Europe	E. Favre, V. Falk, C. Roizard and E. Schaer, ENSIC-INPL, Nancy/F
14:50	Trends in chemical engineering education in Eastern Europe based on Polish experience	J. Baldyga, Warsaw University of Technology/PL
15:45	Implementing Bologna in south European countries: Comparative analysis of some research findings	A. Veiga, A. Amaral and A. Mendes, University of Porto/PT
16:10	UK developments in chemical engineering education	P. Sharratt, University of Manchester/UK
16:35	Teaching and learning in Chemical Product Engineering – an evolving part of the Chemical Engineering Curriculum	M. E. Vigild, S. Kiil and J. A. Wesselingh, Technical University of Denmark, Lyngby/DK
17:00	Joint discussion and conclusion	
17:30	End of workshop	

This workshop has been sponsored by: Novartis Pharma AG (CH), BASF – The Chemical Company (DE), The Insitution of Chemical Engineers - IChemE (UK), Merck KgaA (DE), ARKEMA (France)

ECCE-6 Reception on Sunday 16 September

All participants are invited to the ECCE-6 “welcome recepetion” from 17:30 - 20:00 on Sunday, 16 September 2007 at the Foyer of the confernce venue. This reception is being sponsored by Haldor Topsøe A/S.

Foyer at Bella Center (Photo: Bella Center)

This reception is open to all registered particpants and their guests

ECCE-6 Town Hall Reception on 18 September

The Mayor of Copenhagen invites the ECCE-6 delegates for a reception at the Town Hall (Rådhuspladsen) on Tuesday 18 September from 18:30.

Christmas tree at Rådhuspladsen, Photographer: Christian Alsing

A light meal will be served.

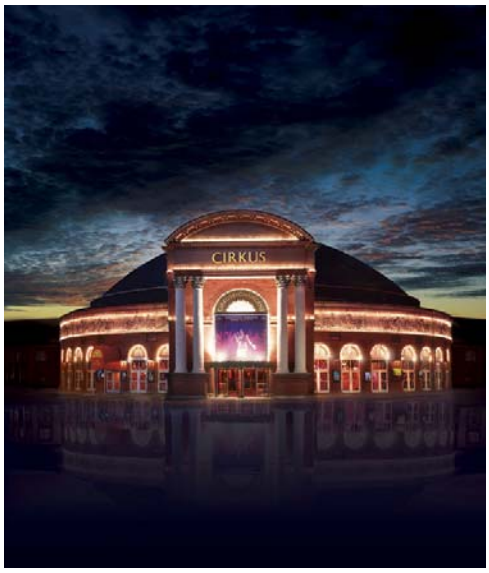
Entrance by invitation only – invitation cards must be shown for entry to the reception.

CONFERENCE DINNER

Venue: Cirkusbygningen (near Scala – see the map on page 20)

Date: Wednesday 19 September

Time: 6:30 pm



The ECCE-6 conference dinner will take place at the Wallmanns Salonger, Cirkusbygningen (Copenhagen Circus Building) - just opposite the beautiful Tivoli! The program will start at 6:30 pm with the show starting at 7:00 pm. While you are enjoying a 3 meal exquisite menu, the artists will perform on different stages in the restaurant. The young and talented artists have been chosen from more than 2,000 applicants throughout Scandinavia. They have gone through hours and hours of training including vocal training, choreography, gymnastics and stage behaviour. Beside the technicalities with the show program, they have also learned about food and beverage, waiting techniques and guest relations. The result of this combination, is the unique concept of Wallmanns Salonger, the only restaurant where the artists also wait at your table; the restaurant where you can enjoy excellent food while watching the young artists perform their acts on a stage close to your table!

Entry by dinner ticket only

Map of the city center of Copenhagen

AWARDS: Jacques Villermaux Medal 2007

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."

Prof. Dr.-Ing. Gerhart Eigenberger, Stuttgart, Germany

Prof. Dr.-Ing. Gerhart Eigenberger, Stuttgart, Germany, is the laureate of the Jacques Villermaux Medal 2007. He has been chosen for the award in recognition of his outstanding scientific contributions to chemical reaction and process engineering, his support of the Federation's Working Party on Chemical Reaction Engineering as a member and chairman and of the International Symposium on Chemical Reaction Engineering (ISCRE), and thus the promotion of international understanding and co-operation in the discipline.

The previous winners of the Jacques Villermaux Medal are:

1999 - Prof. Dr.ir Gilbert Fromment , Belgium
2003 - Prof. dr. Frits J. Zuiderweg , The Netherlands

EFCE Student Mobility Awards

The EFCE Student Mobility Award aims at promoting mobility of European chemical engineering students. This award is given every 2nd year, starting from 2005.

Three prizes are awarded to students who have studied successfully at least on semester in first or second cycle study programmes in chemical engineering in each of at least two different European countries.

The three award winners for 2007 are the following:

Daniel Webber*
University of Cambridge, UK

Stefanie Demming*
Technische Universität
Braunschweig, Germany

Ana Carvalho*
Instituto Superior Técnico (&
Technical University of Denmark),
Portugal

* The current affiliation is listed

POSTER AWARDS

Process Systems Enterprise Ltd., is sponsoring 4 poster awards, one for each of the four poster sessions at ECCE-6. That is, from the posters presented on each day, one would be selected for the ECCE-6 poster award. The award will consist of a cash prize of Euro 300 and a certificate. Members of the international scientific committee would select the poster winners. The winners will be announced in the closing ceremony, when also the cash prize and certificate will be given to each winner.

INSTRUCTIONS FOR PRESENTERS

Oral Presentations

- Presenters are requested to arrive at the session room at least 15 minutes before the start of the session, introduce themselves to the session chairs and make sure that their presentation has been uploaded.
- In order to maintain the conference and session time tables, authors are requested not to exceed their allocated times and session chairs are asked to strictly follow the time table.
- All session rooms will have data-projectors and a PC connected to it. Authors will need to upload their presentations before the start of the session (preferably the day before – see below) or at least 15 minutes before the session start. It will not be possible to use any external PC. Only the PC connected to the data projector can be used. Power-point presentations should be compatible with Office 2003 running under Windows XP.
- The power-point presentations can be uploaded at the "focus room" of the Bella Center (conference venue). ECCE-6 session aides as well as technicians will be available to help authors to upload and check their presentations.
- Presentation files can be sent one week before to Eva Mikkelsen (eva@kt.dtu.dk) for uploading before the conference.
- Please note that unless specially requested, overhead projectors will not be available in the session rooms. Also, use of author's PC for the presentation will not be allowed unless arranged before.

Poster Presentations

- Please consult the daily list of posters. This list will contain the frame number where your poster needs to be put. Posters should be put-up in the morning and taken-down before the end of the day.
- There will be session aides to help you with locating the poster frame as well as materials needed to put-up the poster.
- The poster frames are large enough to allow poster dimensions of, for example, 100cm (height) x 80 cm (width) - or the A0 format.
- During the discussion time allocated for posters (from 13:30 to 15:00 on 17, 18, 19 September and from 13:30 to 14:40 on 20 September), at least one author of the poster should be present at their poster.

TECHNICAL PROGRAM GRID

Date	Start	End	Session numbers		Activity /Session Title	Room Number
			No	Reference		
16/9	15:00	17:30			Registration	Foyer
17/9	8:00	17:00			Registration	Foyer
18/9	8:00	17:00			Registration	Foyer
19/9	8:00	17:00			Registration	Foyer
20/9	8:00	12:30			Registration	Foyer
17/9	08:30				Start of technical sessions	12 sessions
18/9	08:45				Start of technical sessions	12 sessions
19/9	08:45				Start of technical sessions	12 sessions
20/9	08:45				Start of technical sessions	12 sessions
17/9	08:30	09.00			Openning session	Auditorium 10-12
17/9	09:05	10:45	1-2	T01, T02	Plenary lectures (K01, K02)	Auditorium 10-12
18/9	8:45	10:30	32-43	P2-1	Parallel oral sessions (105 min)	12 sessions
19/9	08:45	10:30	73-74	T03, T04	Plenary lectures (K03, K04)	Auditorium 10-12
20/9	8:45	10:30	108-119	P4-1	Parallel oral sessions (105 min)	12 sessions
17/9	10:45	11:15			Break (Coffee/Tea cakes to be served in exhibition area)	Exhibition Area
18/9	10:30	11:00			Break (Coffee/Tea cakes to be served in Foyer)	Exhibition Area
19/9	10:30	11:00			Break (Coffee/Tea cakes to be served in Exhibition Area)	Exhibition Area
20/9	10:30	11:00			Break (Coffee/Tea cakes to be served in Exhibition Area)	Exhibition Area
17/9	11:15	12:30	3-14	P1-1	Parallel oral sessions (75 min)	12 sessions
18/9	11:00	12:30	44-54	P2-2	Parallel oral sessions (90 min)	12 sessions
19/9	11:00	12:30	78-88	P3-1	Parallel Oral Sessions (90 min)	12 sessions
20/9	11:00	12:30	120-131	P4-2	Parallel oral sessions (90)	12 sessions
17/9	12:30	13:30			Lunch Break	Lunch Room
18/9	12:30	13:30			Lunch Break	Lunch Room
19/9	12:30	13:30			Lunch break	Lunch Room
20/9	12.3	13:30			Lunch Break	Lunch Room
17/9	13.30	15:00	15	Poster-1	Poster Session (Cofee-tea will be served at 14:30)	Exhibition Area
18/9	13:30	15:00	55	Poster-2	Poster Session (Cofee-tea will be served at 14:30)	Exhibition Area
19/9	13:30	15:00	89	Poster-3	Poster Session (Cofee-tea will be served at 14:30)	Exhibition Area
20/9	13:30	14:40	132	Poster-4	Poster Session (Cofee-Tea will be served at 14:20)	Exhibition Area
17/9	15:00	17:00	16-27	P1-2	Parallel sessions (120 min)	12 sessions
18/9	15:00	17:00	56-67	P2-3	Parallel oral sessions (120 min)	12 sessions
19/9	15:00	17:00	91-102	P3-2	Parallel oral sessions (120 min)	12 sessions
20/9	14:40	16:40	133-140	P4-3	Parallel oral sessions (120)	12 sessions

16/9	17:30	20:00	ECCE-6 Reception sponsored by Haldor Topsoe	Foyer
17/9	17:45	20:00	Reception by Elsevier	Foyer
18/9	18:30	20:30	Reception at the Town Hall (addmission my invitation only)	Town Hall
19/9	18:30	23:00	Conference Dinner (by invitation only)	Circusbygning
			Meetings: EFCE, WCEC, WP, Sections, ….	
16/9	09:00	13:00	EFCE Executive Board Meeting	Room 17
16/9	14:30	17:00	EFCE General Assembly	Room 17
16/9	10:00	16:00	Education WP business meeting	Room 5-6
16/9	15:30	17:00	Reaction Engineering WP business meeting	BV2
17/9	10:00	12.30	Particulate Systems WP business meeting	BV2
17/9	14:00	17:00	WCEC Executive Committee meeting	Room 21
17/9	15:00	17:30	Drying WP business meeting	BV2
17/9	16:00	18:00	Mixing WP business meeting	Room 5-6
18/9	13:30	15:00	EnvProtSus section business meeting	Room 5-6
18/9	15:00	17:30	Process Intensification WP business meeting	BV2
19/9	10:00	14:30	Thermodynamic & Transport Properties WP business meeting	Room 5-6
19/9	10:30	12:30	Separation Technology section meeting	BV2
19/9	13:30	15:00	Membranes WP business meeting	BV2
20/9	16:45	17:30	Closing Session	Aud-10-11-12
16/9		20:00	Close of Sunday reception	
17/9	17:45		End of Day 1 Technical Sessions	
18/9		17:45	End of Day 1 Technical Sessions	
19/9		17:45	End of Day 1 Technical Sessions	
20/9		17:30	Close of ECCE-6	

TECHNICAL PROGRAM GRID

Date	Start	End	Session numbers		Activity /Session Title	Room Number
			No	Reference		
17/9	8:30	9:00		T0-0	ECCE-6 Openning Session (Lars Pallesen, Jiri Drahos, Kim Dam-Johansen, Rafiqul Gani)	A10-A12
17/9	9:05	9:55	1	T0-1	Plenary Lecture: Mr. A. Noack, Bayer Technology Services, Germany	A10-A12
17/9	9:55	10:45	2	T0-2	Plenary Lecture: Prof John D. Perkins, The University of Manchester, UK	A10-A12
19/9	8:45	9:35	73	T0-3	Plenary lecture: Mr. Per Falholt (4176), Novozymes, Denmark	Aud-10-11-12
19/9	9:40	10:30	74	T0-4	Danckwerts Lecture 2007: Prof Matthew Tirrell, Univ of California, USA	Aud-10-11-12
Theme-1: Sustainable process-product development & green chemistry						
17/9	17:05	17:45	28	T1-K1	Keynote-1: Pierre le Thiez, France	Hall-A3
18/9	17:05	17:45	68	T1-K2	Keynote-2: Krzysztof Warmuzinski, Poland	Hall-A1
19/9	17:05	17:45	103	T1-K3	Keynote-3: M Østberg, Denmark	BV1
17/9	11:15	12:30	3	T1-1	Modelling of Ionic Liquid Systems	Aud-10
18/9	15:00	17:00	57	T1-2	Green Organic Synthesis Routes	16
18/9	15:00	17:00	58	T1-3	Environmental Engineering & Management	Hall-A1
19/9	15:00	17:00	91	T1-4b	Sustainable & Clean Technoloies – Ib: Extraction & Remediation	18
19/9	11:00	12:30	78	T1-4a	Sustainable & Clean Technologies – Ia: Extraction & Remediation	Hall-A1
19/9	15:00	17:00	92	T1-5a	Sustainable & Clean Technoloies : Energy Production	19
19/9	11:00	12:30	79	T1-5b	Sustainable & Clean Technologies: Energy Production	Hall-A2
18/9	11:00	12:30	45	T1-6	Sustainable & Clean Technologies - III: Combustion & Emission	Hall-A1
18/9	8:45	10:30	33	T1-7	Selection & Use of Organic Solvents	16
17/9	15:00	17:00	16	T1-8	SCF as solvent substitutes	16
17/9	13.3	15:00	15	T1-P	Theme-1 Posters (all T1-topics)	Exhibition Area
Theme-2: Advancing the chemical engineering fundamentals						
17/9	17:05	17:45	29	T2-K1	Keynote-1: Doros N Theodorou, Greece	BV1
18/9	17:05	17:45	69	T2-K2	Keynote-2: Jaap Schouten, The Netherlands	20
18/9	17:05	17:45	70	T2-K3	Keynote-3: Enrico Drioli, Italy	Aud-10
19/9	17:05	17:45	106	T2-K4	Keynote 4: Matthew Jones & Jan Ulrich, Germany	20
17/9	11:15	12:30	4	T2-1a	Hydrocarbons & Petrochemicals	BV1
17/9	15:00	17:00	17	T2-1b	Applications of Equations of state	BV1
18/9	11:00	12:30	46	T2-1c	Developments with SAFT EOS	BV1
18/9	8:45	10:30	34	T2-1d	Molecular Simulation & Related Approaches	BV1
18/9	15:00	17:00	59	T2-1e	Thermodynamics: General	BV1
17/9	11:15	12:30	5	T2-2a	Chemical Reaction Engineering - Kinetics & Modelling	20
17/9	15:00	17:00	18	T2-2b	Chemical Reaction Engineering - Advanced Concepts	20
18/9	15:00	17:00	60	T2-2c	Chemical Reaction Engineering - Practical applications	20
17/9	15:00	17:00	19	T2-3	Particulate Systems	Hall-A2
20/9	14:40	16:40	133	T2-4	Rheology	17
17/9	11:15	12:30	6	T2-5a	Multifase Flows – I	Hall-A1
17/9	15:00	17:00	20	T2-5b	Multifase Flows - II	Hall-A1
18/9	8:45	10:30	35	T2-5c	Multifase Flow - III	Hall-A1

19/9	15:00	17:00	93	T2-6a	Interfacial & Colloidal Phenomena – I	17
20/9	8:45	10:30	110	T2-6b	Interfacial & Colloidal Phenomena – II	17
20/9	11:00	12:30	122	T2-6c	Interfacial & Colloidal Phenomena – III	17
18/9	11:00	12:30	47	T2-7a	Transport Phenomena – I	18
19/9	11:00	12:30	80	T2-7c	Transport Phenomena – III	18
18/9	15:00	17:00	61	T2-7b	Transport Phenomena – II	18
18/9	15:00	17:00	62	T2-8a	Membranes & Membrane Science – I	Aud-10
19/9	15:00	17:00	94	T2-8b	Membranes & Membrane Science – II	16
19/9	15:00	17:00	95	T2-9	Crystallization	20
17/9	11:15	12:30	8	T2-10a	Distillation, Absorption & Extraction – I	18
17/9	15:00	17:00	21	T2-10b	Distillation, Absorption & Extraction – II	18
18/9	8:45	10:30	37	T2-10c	Distillation, Absorption & Extraction – III	18
17/9	11:15	12:30	7	T2-11a	Filtration – I	17
18/9	8:45	10:30	36	T2-11b	Filtration - II	17
18/9	11:00	12:30	48	T2-12a	Polymer Science & Engineering – I	Hall-A3
18/9	8:45	10:30	41	T2-12b	Polymer Science & Engineering – II	Hall-A3
20/9	8:45	10:30	111	T2-13a	Catalysis - I	18
20/9	11:00	12:30	120	T2-13b	Catalysis - II	18
20/9	14:40	16:40	134	T2-13c	Catalysis - III	18
18/9	11:00	12:30	49	T2-14a	Electrochemical Engineering – I	16
19/9	11:00	12:30	81	T2-14b	Electrochemical Engineering – II	16
17/9	13.3	15:00	15	T2-P1	Thermodynamics (poster session)	Exhibition Area
18/9	13:30	15:00	55	T2-P2	Chemical Reaction Engineering (poster session)	Exhibition Area
17/9	13.3	15:00	15	T2-P3	Particulate Systems (poster session)	Exhibition Area
20/9	13:30	14:40	132	T2-P4	Rheology (poster session)	Exhibition Area
18/9	13:30	15:00	55	T2-P5	Multifase Flow (poster session)	Exhibition Area
20/9	13:30	14:40	132	T2-P6	Interfacial & Colloidal Phenomena (poster session)	Exhibition Area
17/9	13.3	15:00	15	T2-P7	Transport Phenomena in Porous/Granular Media (poster session)	Exhibition Area
18/9	13:30	15:00	55	T2-P8	Membranes & Membrane Science (poster session)	Exhibition Area
20/9	13:30	15:00	89	T2-P9	Crystallization (poster session)	Exhibition Area
18/9	13:30	15:00	55	T2-P10	Distillation, Absorption & Extraction (poster session)	Exhibition Area
18/9	13:30	15:00	55	T2-P11	Filtration (poster session)	Exhibition Area
18/9	13:30	15:00	55	T2-P12	Polymer Science & Engineering (poster session)	Exhibition Area
19/9	13:30	15:00	89	T2-P13	Catalysis (poster session)	Exhibition Area
19/9	13:30	15:00	89	T2-P14	Electrochemical engineering (poster session)	Exhibition Area

Theme-3: Multi-scale and/or multi-disciplinary approach to process-product innovation

17/9	17:05	17:45	30	T3-K1	Keynote-1: Neville L N Brewis, United Kingdom	Aud-12
18/9	17:05	17:45	71	T3-K2	Keynote-2: Ka M Ng, Hong Kong	Aud-12
19/9	17:05	17:45	107	T3-K3	Keynote-3: Dibaker Bhattacharya, USA	Aud-12
19/9	17:05	17:45	104	T3-K4	Keynote 4: Juan J. de Pablo, USA	Aud-11
17/9	15:00	17:00	22	T3-1	Nanotechnology & Nanomanufacturing	17
18/9	11:00	12:30	50	T3-2	Controlled Release of the Active Ingredient	17
17/9	15:00	17:00	23	T3-3a	Analysis of Energy Issues	Aud-12
18/9	8:45	10:30	38	T3-3b	Analysis of Environmental Issues	Aud-10
18/9	11:00	12:30	51	T3-4a	CFD & Chemical Engineering	19
18/9	15:00	17:00	63	T3-4b	CFD & Chemical Engineering	19
18/9	8:45	10:30	39	T3-5	Multiscale Modelling	Hall-A2

18/9	11:00	12:30	52	T3-6	Nanotechnology: New Developments	Aud-10
20/9	14:40	16:40	135	T3-7	Integrated methodologies	16
18/9	11:00	12:30	53	T3-8	Novel Separation Techniques	20
18/9	8:45	10:30	40	T3-9	Analysis of Bio-Fuels (Plus M N Karim, USA – keynote lecture)	Aud-12
20/9	11:00	12:30	131	T3-10	Innovative Process Equipment-Operation Design	16
18/9	13:30	15:00	55	T3-P	Theme-3 Poster Session (All theme-3 posters)	Exhibition Area

Theme-4: Systematic methods and tools for managing the complexity

18/9	17:05	17:45	72	T4-K1	Keynote-1: J Morris, UK	Hall-A3
19/9	17:05	17:45	105	T4-K2	Keynote-2: A Bode, Germany	19
20/9	14:40	16:40	136	T4-K	Keynote-3-4-5 (L von Wedel, Germany; V Venkatasubramanian, USA; S Pistikoloupos, UK)	Hall-A1
17/9	11:15	12:30	9	T4-1a	Process Synthesis & Design – I	Aud-12
18/9	15:00	17:00	64	T4-1b	Process Synthesis & Design – II	Hall-A2
18/9	8:45	10:30	42	T4-2	Process Operations	20
20/9	11:00	12:30	123	T4-3	Supply Chain Management & Business Decision support system	19
18/9	15:00	17:00	67	T4-4	Advances in Computational & Numerical Methods	Hall-A3
20/9	11:00	12:30	124	T4-5	Safety & Risk Management	20
19/9	11:00	12:30	82	T4-6	Process Analytical Technology: PAT	20
17/9	15:00	17:00	24	T4-7	Software Architecture, Standards & Interfaces (plus M Pons, France – keynote lecture)	Aud-10
18/9	15:00	17:00	65	T4-8	Process Control	17
17/9	11:15	12:30	10	T4-9a	Process Simulation & Optimization - I	19
18/9	8:45	10:30	43	T4-9b	Process Simulation & Optimization - II	19
19/9	11:00	12:30	83	T4-9c	Process Simulation & Optimization - III	19
20/9	8:45	10:30	113	T4-10	Tools Integration & CAPE Methods/tools	19
18/9	13:30	15:00	55	T4-P1	Process Synthesis & Design (poster session)	Exhibition Area
19/9	13:30	15:00	89	T4-P2	Process Operations (poster session)	Exhibition Area
18/9	13:30	15:00	55	T4-P4	Advances in Computational & Numerical Methods (poster session)	Exhibition Area
18/9	13:30	15:00	55	T4-P8	Process Control (poster session)	Exhibition Area
19/9	13:30	15:00	89	T4-P9	Process simulation & optimization (poster session)	Exhibition Area
20/9	13:30	14:40	132	T4-P10	Combined topics 3, 5, 7, 10 (poster session)	Exhibition Area

Theme-5: Integration of life sciences & engineering

20/9	9:00	10:30	112	T5-K	Keynote lectures (W. Wiechert, Germany, J. Woodley, Denmark)	Aud-10
19/9	11:00	12:30	84	T5-1	Biochemical Engineering	Aud-10
20/9	11:00	12:30	121	T5-2	Design, Analysis & Control of Fermenation Processes	Aud-10
20/9	14:40	16:40	137	T5-3	Bio-transformation in the Laboratory & in Large Scale Production	Hall-A2
20/9	13:30	15:00	89	T5-P	Theme-5 posters	Exhibition Area

Theme-6: Educating chemical engineers for coming challenges

17/9	17:05	17:45	31	T6-K1	Keynote : Sebastião Feyo de Azevedo, Portugal	Aud-10
17/9	11:15	12:30	11	T6-1	Chemical Engineering Education - New Directions	16
17/9	15:00	17:00	25	T6-2	Teaching Methods, Techniques & Modules	19
17/9	11:15	12:30	12	T6-3	Teaching Chemical Product Design & Engineering	Aud-11
17/9	13.30	15:00	15	T6-P	Theme-6 Posters	Exhibition Area

20/9	16:45	17:30	142	Z4	Closing Session (PSE Poster Awards, EFCE Student Mobility Awards, Danisco Award, WCCE-2009, Close)	Aud-10-11-12

Date	Start	End	Session numbers		Activity /Session Title	Room Number
			No	Reference		
17/9	15:00	17:00	26	S-1	**Invited Session on Multiscale Modelling** (J-C Charpentier, France; M Wolf, Germany; P Ungerer, France; I Cameron, Australia)	Aud-11
18/9	15:00	17:00	66	SS-2	**Invited Session on Energy Issues** (G de de Koeijer, Norway; W Arlt, Germany; J Petrie, Australia; B Ladewig, France)	Aud-12
19/9	15:00	17:00	96	S-3	**Biotechnology - Invited Session** (J Nielsen, DK; R Reuss, Germany; T Kanamori, Japan; A Meyer, DK; J Villadsen, DK)	Aud-10
Symposium: EPIC-1: European Process Intensification Conference – 1						
19/9	9:45	10:30	75	S4-A	Keynote Lecture 1: Klavs F Jensen, USA	20
19/9	11:00	12:30	85	S4-B	Intensified Hydrodynamics & Structured Environments: IHSE 1	Aud-11
19/9	11:00	12:30	86	S4-C	Alternative Energy Forms & Transfer Mechanisms: AE 1	Aud-12
19/9	15:00	17:00	97	S4-D	Intensified hydrodynamics & structured environments: IHSE 2	Aud-11
19/9	15:00	17:00	98	S4-E	Intensified Plants & Process Integration: IPP1	Aud-12
20/9	8:45	9:30	108	S4-F	Keynote Lecture - Jan Harmsen, The Netherlands	Aud-11
20/9	9:30	10:30	118	S4-G	Intensified Hydrodynamics & Structured Environments: IHSE 3	Aud-11
20/9	9:30	10:30	119	S4-H	Multifunctionality: MF1	Aud-12
20/9	11:00	12:30	125	S4-I	Intensified hydrodynamics & structured environments: IHSE 4	Aud-11
20/9	11:00	12:30	126	S4-J	Multifunctionality: MF2	Aud-12
20/9	14:40	16:40	138	S4-K	New concepts: NC	19
20/9	14:40	16:40	139	S4-L	Multifunctionality: MF3	20
19/9	13:30	15:00		S4-P-1	Process Intensification posters (part 1)	Exhibition Area
20/9	13:30	14:40		S4-P-2	Process Intensification posters (part 2)	Exhibition Area
Symposium: Innovations in Food Technology (LMC Congress)						
19/9	9:45	10:00	76	S5-A	Openning address: Bent Claudi Lassen, LMC Board, Denmark	Hall-A3
19/9	10:00	10:30	77	S5-B	Keynote Lecture: Thomas Olsson, SIK, Sweden	Hall-A3
19/9	11:00	12:30	88	S5-C	Keynote Lecture: Peter Fryer, University of Birmingham, UK	Hall-A3
19/9	11:00	12:30		S5-C	Keynote Lecture: Andrew Morgan, Danisco, UK	Hall-A3
19/9	15:00	17:05	99	S5-D	Meals - Convenience, Gastronomy & Quality	Hall-A1
19/9	15:00	17:05	100	S5-E	White Biotech & Related Processes	Hall-A2
19/9	15:00	17:05	101	S5-F	Flexible Production, PAT & Modelling	Hall-A3
19/9	17:05	17:30	99	S5-Dd	Meals - Convenience, Gastronomy & Quality (5 min oral presentation in addition to poster)	Hall-A1
19/9	17:05	17:30	100	S5-Ee	White Biotech & Related Processes (5 min oral presentation in addition to poster)	Hall-A2
19/9	17:05	17:30	101	S5-Ff	Flexible Production, PAT & Modelling (5 min oral presentation in addition to poster)	Hall-A3
20/9	8:45	12:05	114	S5-G	Process & Product Innovation	Hall-A1
20/9	12:05	12:30	127	S5-Gg	Process & Product Innovation (5 min oral presentation in addition to poster)	Hall-A1
20/9	8:45	12:05	115	S5-H	Hygiene, Hygienic Design & Unit Operation	Hall-A2
20/9	12:05	12:30	128	S5-Hh	Hygiene, Hygienic Design & Unit Operation (5 min oral presentation in addition to poster)	Hall-A2
20/9	8:45	12:05	116	S5-I	Modern Analysis: Chemical & Multivariate Analysis	Hall-A3
20/9	12:05	12:30	129	S5-Ii	Modern Analysis: Chemical & Multivariate Analysis (5 min oral presentation in addition to poster)	Hall-A3
20/9	14:40	16:40	140	S5-J	Keynote Lecture: Willem M. de Vos, Wageningen & Helsinki University, The Netherlands	Hall-A3
20/9	14:40	16:40		S5-J	Hordur Arnarson, Marel, Iceland	Hall-A3
20/9	14:40	16:40		S5-J	Rasmus Bro, University of Copenhagen, DK	Hall-A3

20/9	14:40	16:40		S5-J	Hans Elbek Pedersen, Danisco, DK	Hall-A3
19/9	13:30	15:00		S5-P-1	Innovations in Food Technology/LMC Congress posters (part 1)	Exhibition Area
20/9	13:30	14:40		S5-P-2	Innovations in Food Technology/LMC Congress posters (part 2)	Exhibition Area
18/9	8:45	10:30	32	S6	**Workshop on Future of European Chemical Engineering Education in a Globalized World** (see page 18)	Aud-11

Symposium: Environmental Protection & Sustainability

17/9	11:15	12:30	13	S7-A	Environmental Protection & Sustainability -I	Hall-A2
17/9	11:15	12:30	14	S7-B	Environmental Protection & Sustainability –II	Hall-A3
17/9	15:00	17:00	27	S7-C	Environmental Protection & Sustainability -III	Hall-A3
18/9	11:00	12:30	54	S7-K	Keynote lectures: (M Irabien, Spain; M Narodoslawsky, Austria)	Aud-12
17/9	13.3	15:00		S7-P	Environmental Protection & Sustainability Posters	Exhibition Area

Symposium: Chemical Product Design and Engineering (CPD&E)

19/9	13:30	15:00		S8-1P	Chemical product design & engineering	Exhibition Area
19/9	11:00	12:30	87	S8-A-B	CPD&E-I (plus K Schwach-Abdellaoui, Denmark – keynote lecture)	BV1
19/9	15:00	17:00	102	S8-C	CPD&E-II	BV1
20/9	8:45	10:30	117	S8-D,E	CPD&E-III (plus M Noordermeer; The Netherlands – keynote lecture)	BV1
			130	S8-F	CPD&E-IV	BV1
20/9	14:40	16:40	141	S8-G	CPD&E-V	BV1

TECHNICAL PROGRAM GRID

Full list of sessions ordered in terms of date

Date	Start	End	Session numbers No	Reference	Activity /Session Title	Room Number	Session Chairs
16/9	15:00	17:30			Registration	Foyer	
Sunday	17:30	20:00			ECCE-6 Reception sponsored by Haldor Topsoe	Foyer	
		20:00			Close		
17/9	8:00	17:00			Registration	Foyer	
	8:30	9:00			ECCE-6 Openning Session (Lars Pallesen, Jiri Drahos, Kim Dam- Johansen, Rafiqul Gani)	A10-A12	
	9:05	9:55	1	T0-1	Plenary Lecture: Mr. A. Noack, Bayer Technology Services, Germany	A10-A12	P Falholt
Monday	9:55	10:45	2	T0-2	Plenary Lecture: Prof John D. Perkins, The University of Manchester, UK	A10-A12	R Gani
	10:45	11:15			Break (Coffee/Tea cakes to be served in exhibition area)	Exhibition Area	
	11:15	12:30			Parallel oral sessions (75 min)		
			3	T1-1	Modelling of Ionic Liquid Systems	Aud-10	W Arlt K Thomsen
			4	T2-1a	Hydrocarbons & Petrochemicals	BV1	
			5	T2-2a	Chemical Reaction Engineering - Kinetics & Modelling	20	P Glarborg A Renken
			6	T2-5a	Multifase Flow - I	Hall-A1	M A Galan
			7	T2-11a	Filtration - I	17	G Jonsson
			8	T2-10a	Distillation, Absorption & Extraction	18	R Taylor
			9	T4-1a	Process synthesis & design	Aud-12	M R Eden J Grievink
			10	T4-9a	Process Simulation & Optimization – I	19	S Dechelotte A Bode
Monday			11	T6-1	Chemical Engineering Education - New Directions	16	I T Cameron
			12	T6-3	Teaching Chemical Product Design & Engineering	Aud-11	M E Vigild K M Ng
			13	S-7A	Environmental Protection & Sustainability -I	Hall-A2	K Warmuzinski
			14	S-7B	Environmental Protection & Sustainability -II	Hall-A3	K P Christensen
	12:30	13:30			Lunch break	Lunch Room	
	13.3	15:00	15		Poster Session (Cofee-tea will be served in the poster area at 14:30)		
Monday				T1-P	Theme-1 Posters (all T1-topics)	Exhibition Area	A Kraslawski
				T2-P1	Thermodynamics	Exhibition Area	G Kontogeorgis
				T2-P3	Particulate Systems	Exhibition Area	E Tsotsas
				T2-P7	Transport Phenomena in Porous/Granular Media	Exhibition Area	
				T6-P	Theme-6 Posters	Exhibition Area	S F de Azevedo
				S-7P	Environmental Protection & Sustainability Posters	Exhibition Area	B Kawalec-Pientrenko

Monday	15:00	17:00			Parallel sessions (120 min)		
			16	T1-8	SCF as solvent substitutes	16	H Sovova J-D Grunwaldt
			17	T2-1b	Applications of Equations of state	BV1	V Ruzisca N von Solms
			18	T2-2b	Chemical Reaction Engineering - Advanced Concepts	20	J Schouten M Østberg
			19	T2-3	Particulate Systems	Hall-A2	
			20	T2-5b	Multifase Flows - II	Hall-A1	
			21	T2-10b	Distillation, Absorption & Extraction	18	
			22	T3-1	Nanotechnology & Nanomanufacturing	17	P Koltsova
			23	T3-3a	Analysis of Energy Issues	Aud-12	P A Jensen
			24	T4-7	Software Architecture, Standards & Interfaces (plus M Pons, France - keynote lecture)	Aud-10	M Pons L von Wedel
			25	T6-2	Teaching Methods, Techniques & Modules	19	J Abildskov C Roizard
			26	S-1	Invited Session on Multiscale Modelling (J-P Charpentier, M Wolf, P Ungerer, I Cameron)	Aud-11	E N Pistikopoulos
			27	S-7C	Environmental Protection & Sustainability -III	Hall-A3	A Irabien
	17:05	10:48			Keynote Lectures		
			28	T1-K1	Theme-1: Pierre le Thiez, France	Hall-A3	A Kraslawski
			29	T2-K1	Theme-2: Doros N Theodorou, Greece	Aud-12	G Kontogeorgis
			30	T3-K1	Theme-3: Neville L N Brewis, United Kingdom	BV1	F Muller
			31	T6-K1	Theme-6: Sebastião Feyo de Azevedo, Portugal	Aud-10	M Molzahn
	17:45				End of Day 1 Technical Sessions		
	17:45	19:00			Reception by Elsevier	Foyer	
18/9	8:00	17:00			Registration	Foyer	
Tuesday	8:45	10:30			Parallel oral sessions (105 min)		
			32	S-6	Future of European Chemical Engineering Education in a Globalized World (see page 18)	Aud-11	M Molzahn
			33	T1-7	Selection & Use of Organic Solvents	16	A Skov
			34	T2-1d	Molecular Simulation & Related Approaces	BV1	I Economou
			35	T2-5c	Multifase Flow - III	Hall-A1	
			36	T2-11b	Filtration - II	17	
			37	T2-10c	Distillation, Absorption & Extraction	18	
			38	T3-3b	Analysis of Environmental Issues	Aud-10	M Narodoslawsky
			39	T3-5	Multiscale Modelling	Hall-A2	C Kiparissides J Petrie
Tuesday			40	T3-9	Analysis of Bio-Fuels (plus M N Karim, USA – keynote lecture)	Aud-12	K Pedersen PA Pilavachi
			41	T2-12b	Polymer Science & Engineering	Hall-A3	T Meyer
			42	T4-2	Process Operations	20	R M Filho
			43	T4-9b	Process Simulation & Optimization – II	19	L Puigjaner E Peres-Cisneros
	10:30	11:00			Break (Coffee/Tea cakes to be served in Foyer)	Foyer	
	11:00	12:30			Parallel oral sessions (90 min)		

		44	S-6	Future of European Chemical Engineering Education in a Globalized World (see separate sheet)	Aud-11	M Molzahn
Tuesday		45	T1-6	Sustainable & Clean Technologies - III: Combustion & Emission	Hall-A1	
		46	T2-1c	Developments with SAFT EOS	BV1	J Gross
		47	T2-7a	Transport Phenomena – Modelling	18	
		48	T2-12a	Polymer Science & Engineering	Hall-A3	D N Theodorou
		49	T2-14a	Electrochemical Engineering	16	F Lapicque B Saha
		50	T3-2	Controlled Release of the Active Ingredient	17	G Bell
		51	T3-4a	CFD & Chemical Engineering	19	A Lucia
		52	T3-6	Nanotechnology: New Developments	Aud-10	S Hvilsted
		53	T3-8	Novel Separation Techniques (1820, 2833, 1842, 3869)	20	R Pohorecki
		54	S-7K	EP & S (Keynote): (M Irabien, Spain-4090, M Narodoslawsky, Austria-1777)	Aud-12	B Kawalec-Pietrenko
	12:30 13:30			Lunch Break	Lunch Room	
	13:30 15:00	55		Poster Session (Cofee-tea will be served in the poster area at 14:30)		
			T2-P2	Chemical Reaction Engineering	Exhibition Area	Schouten, Wild
Tuesday			T2-P5	Multifase Flow	Exhibition Area	
			T2-P8	Membranes & Membrane Science	Exhibition Area	
			T2-P10	Distillation, Absorption & Extraction	Exhibition Area	
			T2-P11	Filtration	Exhibition Area	
			T2-P12	Polymer Science & Engineering	Exhibition Area	
			T3-P	Theme-3 Poster Session (All theme-3 posters: T3-1P, T3-2P, T3-3P, T3-4P)	Exhibition Area	
			T4-1P	Process Synthesis & Design	Exhibition Area	
			T4-4P	Advances in Computational & Numerical Methods	Exhibition Area	
			T4-8P	Process Control	Exhibition Area	
	15:00 17:00			Parallel oral sessions (120 min)		
		56	S-6	Future of European Chemical Engineering Education in a Globalized World (see page 18)	Aud-11	
		57	T1-2	Green Organic Synthesis Routes	16	B Clausen & A Riisager
		58	T1-3	Environmental Engineering & Management	Hall-A1	N Menshutina
Tuesday		59	T2-1e	Thermodynamics: General	BV1	J Cautinho & S Sen
		60	T2-2c	Chemical Reaction Engineering - Practical applications	20	M Hillestad
		61	T2-7b	Transport Phenomena – II	18	
		62	T2-8a	Membranes & Membrane Science	Aud-10	B Norddahl M-B Hagg
		63	T3-4b	CFD & Chemical Engineering	19	
		64	T4-1b	Process Synthesis & Design	Hall-A2	C Wibow
		65	T4-8	Process Control	17	S B Jørgensen M N Karim
		66	S-2	Invited Session on Energy Issues (Statoil, Arlt-2653, Petrie-2748, Ladewig-3109)	Aud-12	E H Stenby
		67	T4-4	Advances in Computational & Numerical Methods	Hall-A3	J B Jørgensen P. Koukkari

Tuesday	17:05	17:45			Keynote Lectures		
			68	T1-K2	Theme-1: Krzysztof Warmuzinski, Poland	Hall-A1	A Kraslawski
			69	T2-K2	Theme-2: Jaap Schouten, The Netherlands	20	G Wild
			70	T2-K3	Theme-2 Enrico Drioli, Italy	Aud-10	J-C Charpentier
			71	T3-K2	Theme-3: Ka M Ng, Hong Kong	Aud-12	A A Broekhuis
			72	T4-K1	Theme-4: Julian Morris, UK	Hall-A3	S B Jørgensen
		17:45			End of Technical Sessions for Day 2		
	18:30	??			Reception at the Town Hall (addmission my invitation only)		
19/9	8:00	17:00			Registration	Foyer	
Wednesday	8:45	9:35	73	P-3	Plenary lecture: Mr. Per Falholt, Novozymes, Denmark	Aud-10-11-12	K Dam-Johansen
	9:40	10:30	74	P-4	Danckwerts Lecture 2007: Prof Matthew Tirrell, Univ of California, USA	Aud-10-11-12	J Drahos
	9:40	10:30	75	S4-A	EPIC-1 Keynote Lecture 1: Klavs F Jensen, USA	20	A. Stankiewicz
	9:45	10:00	76	S5-A	Openning address: Bent Claudi Lassen, LMC Board, Denmark	Hall-A3	
	10:00	10:30	77	S5-B	Keynote Lecture: Thomas Olsson, SIK, Sweden	Hall-A3	
	10:30	11:00			Break (Coffee/Tea cakes to be served in Exhibition Area)	Exhibition Area	
Wednesday	11:00	12:30			Parallel Oral Sessions (90 min)		
			78	T1-4a	Sustainable & Clean Technologies – I: Extraction & Remediation	Hall-A1	
			79	T1-5b	Sustainable & Clean Technologies: Energy Production	Hall-A2	P A Jensen
			80	T2-7c	Transport Phenomena – III	18	
			81	T2-14b	Electrochemical Engineering -II	16	B Saha
			82	T4-6	Process Analytical Technology: PAT	20	L Bang J Morris
			83	T4-9c	Process Simulation & Optimization – III	19	A Bode L E K Achenie
			84	T5-1	Biochemical Engineering	Aud-10	J Woodley W Wiechert
			85	S4-C	Intensified Hydrodynamics & Structured Environments: IHSE 1	Aud-11	V Hessel A Gavrilides
			86	S4-B	Alternative Energy Forms & Transfer Mechanisms: AE 1	Aud-12	A Stankiewicz A B Pandit
			87	S8-A-B	CPD&E-I (plus K Schwach-Abdellaoui, Denmark – keynote lecture)	BV1	A A Broekhuis
			88	S5-C	Keynote Lecture: Peter Fryer, University of Birmingham, UK	Hall-A3	
Wednesday				S5-C	Keynote Lecture: Andrew Morgan, Danisco, UK	Hall-A3	
	12:30	13:30			Lunch break	Lunch Room	
	13:30	15:00	89		Poster Session (Cofee-tea will be served in the poster area at 14:30)		M Jones, J Ulrich, J-P Charpentier, A Friis, A Gorak, M Vigild
				T2-P13	Catalysis	Exhibition Area	
				T2-P14	Electrochemical engineering	Exhibition Area	

Wednesday				T4-P2, P9	Theme-4 (PAT, process control, process simulation & optimization)	Exhibition Area	
				S4-P-1	Process Intensification posters (part 1)	Exhibition Area	
				S5-P-1	Innovations in Food Technology/LMC Congress posters (part 1)	Exhibition Area	
				S8-1P	Chemical product design & engineering	Exhibition Area	
	15:00	17:00			Parallel oral sessions (120 min)		
			91	T1-4b	Sustainable & Clean Technoloies - II: Extraction & Remediation	18	
			92	T1-5a	Sustainable & Clean Technoloies : Energy Production	19	
			93	T2-6a	Interfacial & Colloidal Phenomena	17	
			94	T2-8b	Membranes & Membrane Science	16	D Bhattacharya E. Nagy
Wednesday			95	T2-9	Crystallization	20	M Jones A Rasmusson
			96	S-3	Biotechnology - Invited Session (J Nielsen, R. Reuss, Kanamori, A Meyer, J Villadsen)	Aud-10	K Gernaey
			97	S4-D	Intensified hydrodynamics & structured environments: IHSE 2	Aud-11	E Molga C Gourdon
			98	S4-E	Intensified Plants & Process Integration: IPP1	Aud-12	J Klemes G Schembecker
			99	S5-D	Meals - Convenience, Gastronomy & Quality	Hall-A1	
			100	S5-E	White Biotech & Related Processes	Hall-A2	
			101	S5-F	Flexible Production, PAT & Modelling	Hall-A3	
			102	S8-C	CPD&E-II	BV1	S Kiil
	17:05	17:45	103	T1-K3	Keynote 11: M Østberg, Denmark	BV1	
			104	T3-K4	Keynote 12: Juan J. de Pablo, USA	Aud-11	O Hassager
			105	T4-K2	Keynote 13: A Bode, Germany	19	H J Feise
			106	T2-K4	Keynote 14:Matthew Jones & Jan Ulrich, Germany	20	
			107	T3-K3	Keynote 15: Dibaker Bhattacharya, USA	Aud-12	
Wednesday							
		17:45			Close of day 3 at Bella Center		
	18:30	23:00			Conference Dinner (by invitation only)		
20/9	8:00	12:30			Registration	Foyer	
	8:45	10:30			Parallel oral sessions (105 min)		
Thursday	8:45	9:30	108	S4-F	Keynote Lecture - Jan Harmsen, The Netherlands	Aud-11	A Gorak
	8:45	10:30	110	T2-6b	Interfacial & Colloidal Phenomena	17	
	8:45	10:30	111	T2-13a	Catalysis -I	18	A Jensen
	9:00	10:30	112	T5-K	Theme-5 Keynote lectures (Wolfgang Wiechert, Germany & John Woodley, Denmark)	Aud-10	J Villadsen
	8:45	10:30	113	T4-10	Tools Integration & CAPE Methods/tools	19	M Georgiadis
	8:45	10:30	114	S5-G	Process & Product Innovation	Hall-A1	
	8:45	10:30	115	S5-H	Hygiene, Hygienic Design & Unit Operation	Hall-A2	
	8:45	10:30	116	S5-I	Modern Analysis: Chemical & Multivariate Analysis	Hall-A3	
	8:45	10:30	117	S8-D,E	CPD&E-III (plus M Noordermeer; The Netherlands – keynote lecture)	BV1	M Vigild
	9:30	10:30	118	S4-G	Intensified Hydrodynamics & Structured Environments: IHSE 3	Aud-11	I Turunen M Cabassud
	9:30	10:30	119	S4-H	Multifunctionality: MF1	Aud-12	A Gorak R Taylor

Thursday	10:30	11:00		Break (Coffee/Tea cakes to be served in Exhibition Area)	Exhibition Area	
	11:00	12:30		Parallel oral sessions (90)		
			120 T2-13b	Catalysis - II	18	
			121 T5-2	Design, Analysis & Control of Fermenation Processes	Aud-10	F Lopez-Isunza
			122 T2-6c	Interfacial & Colloidal Phenomena	17	H Wen
			123 T4-3	Supply Chain Management & Business Decision support system	19	H Matos
			124 T4-5	Safety & Risk Management	20	
			125 S4-I	Intensified hydrodynamics & structured environments: IHSE 4	Aud-11	
Thursday			126 S4-J	Multifunctionality: MF2	Aud-12	
			127 S5-Gg	Process & Product Innovation (5 min oral presentation plus poster presentation)	Hall-A1	
			128 S5-Hh	Hygiene, Hygienic Design & Unit Operation ((5 min oral presentation plus poster presentation)	Hall-A2	
			129 S5-Ii	Modern Analysis: Chemical & Multivariate Analysis ((5 min oral presentation plus poster presentation)	Hall-A3	
			130 S8-F	CPD&E-IV	BV1	M Kind
			131 T3-10	Innovative Process Equipment-Operation Design	16	
	12.3	13:30		Lunch Break	Lunch Room	
	13:30	14:40	132	Poster Session (Cofee-Tea will be served in the poster area at 14:20)		
			T2-P4	Rheology	Exhibition Area	
			T2-P6	Interfacial & Colloidal Phenomena	Exhibition Area	
			T2-P9	Crystallization	Exhibition Area	
Thursday			T5-P	Theme-5 posters	Exhibition Area	
			T4-P10	Theme-4 (Supply chain & management, safety & risk management, tools integration & CAPE methods/tools)	Exhibition Area	
			S4-P-2	Process Intensification posters (part 2)	Exhibition Area	
			S5-P-2	Innovations in Food Technology/LMC Congress posters (part 2)	Exhibition Area	
	14:40	16:40		Parallel oral sessions (120)		
			133 T2-4	Rheology	17	
			134 T2-13c	Catalysis - III	18	
			135 T3-7	Integrated methodologies	16	
			136 T4-K	Theme-4 Keynote (Lars von Wedel, Germany; Venkat Venkatasubramanian, USA, Stratos Pistikoloupos, UK)	Hall-A1	
Thursday			137 T5-3	Bio-transformation in the Laboratory & in Large Scale Production	Hall-A2	
			138 S4-K	New concepts: NC	19	J Harmsen H Schoenmakers
			139 S4-L	Multifunctionality: MF3	20	E Drioli T Turek
			140 S5-J	Keynote Lecture: Willem M. de Vos, Wageningen & Helsinki University, The Netherlands	Hall-A3	
				Hordur Arnarson, Marel, Iceland	Hall-A3	
				Rasmus Bro, University of Copenhagen, DK	Hall-A3	
				Hans Elbek Pedersen, Danisco, DK	Hall-A3	

		141	S8-G	CPD&E-V	BV1	H Wesselingh
16:45	17:30	142		Closing Session (PSE Poster Awards, EFCE Student Mobility Awards, Danisco Award, WCCE-2009, Close)	Aud-10-11-12	

T0-0 Monday 17/9 08:30 – 09:00
Openning Session
Auditorium 10-12
Lars Pallesen (Rector-DTU); Jiri Drahos (President-EFCE), Kim Dam-Johansen (Co-chair-ECCE6), Rafiqul Gani (Co-chair, ECCE6)

T0-1 1 Monday 17/9 09:05 – 09:55
Plenary Lecture
Auditorium 10-12
4177 - Chemical Engineering – an answer to mankind's challenges?
Mr Akim Noack, Bayer Technology Services, Germany

T0-2 2 Monday 17/9 09:55 – 10:45
Plenary lecture
Auditorium 10-12
4178 - Chemical Engineering - Whatever Next ?
Prof John Perkins, The University of Manchester, UK

T1-1 3 Monday 17/9 11:15 – 12:30
Modelling of Ionic Liquid Systems
Auditorium – 11

11:15 1493 Equations of state for electrolyte solutions
K Thomsen, Y Lin
Technical University Denmark, Denmark

11:33 673 Modeling of ionic liquid binary and ternary mixture phase equilibria at low and high pressure with the tPC-PSAFT
I Economou[a], E K Karakatsani[a], M C *Kroon[b], C J Peters[b], G-J Witkamp[b]*
[a]NCSR – Demokritos, Greece
[b]TU-Delft, Netherlands

11:51 2221 Liquid phase behaviour in the binary system 1-ethyl-3-methylimidazolium ethylsulfate + alkane (n-heptane, methylcyclohexane, toluene)
M Bendova, Z Wagner
Institute of Chem Process Fundamentals, Czech Republic

12:09 3094 Liquid-liquid equilibria of water + ionic liquids
M G Freire, R. L Gardas, P J Carvalho, L M N B F Santos, I M Marrucho, J A P Coutinho
Universidade de Aveiro, Portugal

T2-1a 4 Monday 17/9 11:15 – 12:30
Hydrocarbons & Petrochemicals
BV1

11:15 3881 VLE of normal and normal/iso paraffin mixtures covering a wide range of molecular weight
S Bonomi[a], S Correra[a], V Calemma[a], J M Shaw[b]
[a]Eni S. P. A., Italy
[b]Univ of Calgary, Canada

11:33 1440 Wax precipitation in crude oils: DSC and model analysis
B Coto[a], C Martos[a], J J Espada[a], M D Robustillo[a], J L Peña[b]
[a]Rey Juan Carlos Univ, Spain
[b]REPSOL-YPF, Spain

11.51 866 Selection of Appropriate Thermodynamic Equations for Simulation of Separation Columns of Vinyl Chloride Unit of Iran Bandar Imam Petrochemical Company
A Eliassi, M M Rabiei, A Kargari, H R Goodarzbod
IROST, Iran

12:09 1098 VLE Prediction via Equation of State Modeling of Compressed Liquid Densities
S Sen
SimSci Esscor, USA

T2-2a 5 11:15 – 12:30
Chemical Reaction Engineering: Kinetics & Modelling
Room 20

11.15 543 Modelling of large reaction network through stochastic methods: application to oligomerization
J R Shahrouzi[a], D Guillaume[a], P Galtier[a], P Rouchon[b], P Costa[c]
[a]Institut Français du Pétrole, France
[b]École des mines de Paris, France
[c]Université Pierre et Marie Curie, France

11:33 725 The water-gas shift reaction in sub-critical water: Reaction kinetics and modeling
G Akgül, A Kruse, M Olzman
Universität Karlsruhe, Germany

11:51 1287 Towards the elucidation of a chemical reaction network for the palladium-catalysed phenylacetylene oxidative carbonylation reaction
K Novakovic, M J Willis, A R Wright
Newcastle University, UK

12:09 752 Parameter estimation in a dynamic gas-liquid film model
S C Cardona, J N Laboulais, M Bordera
UPV-EPSA, Spain

T2-5a 6 Monday 17/9 11:15 – 12:30
Multifase Flows – I
Hall A1

11.15 1031 On the Interrelation of Flooding- and Complete Dispersion Characteristics in Agitated Gas-Liquid Contactors
E Babalona, J Markopoulos
Aristotle Univ Thessaloniki, Greece

11:33 2954 On interactions of stationary particles and rising bubbles
P Basařová, V Machoň, M Hubička, D Horn, M Fujasová
Prague Inst of Chem Tech, Czech Republic

11:51 1727 Effect of the impeller type on the break up of the bubbles in a stirred tank
M Martín, F J Montes, M A Galán
Univ Salamanca, Spain

12:09 1133 The Effect of Particle-Particle Interaction Forces on the Sedimentation and Re-Suspension Properties of Silica Slurries
D Harbottle, D Rhodes, M Fairweather, S Biggs
Leeds University, UK

T2-11a 7 Monday 17/9 11:15 – 12:30
Filtration – I
Room 17

11.15 3358 Filtration of Ultrafine Aerosols: Small Particles, Many Questions

G Mouret, D Thomas , S Callé-Chazelet , D Bémer
CNRS, Nancy Université, France

11:33 2137 Applying core-shell colloids as a tool for understanding solid/ liquid separation of slurries mainly containing organic materials
M Hinge, K Keiding
Aalborg University, Denmark

11:51 2326 Pressure effects in dead-end filtration of skimmed milk: Analysis of cake properties
A Bouchoux, F Garnier, A Harouna, G G Guiziou
INRA, France

12:09 401 Investigating the influence of bed structure on pulp washing using a novel measurement technique
J Lindau, H Theliander
Chalmers Univ of Tech, Sweden

T2-10a 8 Monday 17/9 11:15 – 12:30
Distillation, Absorption & Extraction – I
Room 18

11.15 1177 Structure and Activity Relationships for CO2 Regeneration from Aqueous Amine Based Absorbents
P Singh[a], G F Versteeg[b]
[a]Clarkson Univsersity, USA
[b]Twente University, Netherlands

11:33 731 Revamping gas absorption solvents with functionalized ionic liquids
L M G Sánchez[a], G W Meindersma[b], A B de Haan[b]
[a]Univ of Twente, Netherlands
[b]Univ of Eindhoven, Netherlands

11:51 801 Benefits of Entrainer-based Reactive Distillation over Reactive Distillation for the Synthesis of Fatty Acid Esters
M C Jong[a], A C Dimian[b], N J M Kuipers[c], A B de Haan[c]
[a]Univ of Twente, Netherlands
[b]Univ of Amsterdam, Netherlands
[c]Univ of Eindhoven, Netherlands

12:09 2328 Adsorptive isomer distillation of gasoline related molecules
S I Andersen, A Leerskov, P J Mune
Haldor Topsøe A/S, Denmark

T4-1a 9 11:15 – 12:30
Process Synthesis & Design - I
Aud-12

11.15 1953 Process synthesis and optimization of a supercritical methanol biodiesel production plant
S Espinosa[b], S Diaz[a], E Brignole[a]
[a]PLAPIQUI, Univ del Sur, Argentina
[b]Universidad Nacional del Comahue, Argentina

11:33 649 Development of process alternatives for separation and purification of natural products
C Wibowo[a], B Harjo[b], K M Ng[c]
[a]ClearWaterBay Technology, Inc., USA
[b]Mitsubishi Chemical Group Science and Technology Research Center Inc., Japan
[c]Hong Kong Univ of Sci & Tech, Hong Kong

11:51 3317 A property based design approach for simultaneous optimization of product and process needs
F T Eljack, C C Solvason, N Chemmangattuvalappil, M R Eden
Auburn University, USA

12:09 3049 Towards the integration of chemistry and chemical engineering for innovative process and materials synthesis
P Linke[a], D Linke[b]
[a]University of Surrey, U.K.
[b]Leibnitz Institute for Catalysis, Germany

T4-9a 10 Monday 17/9 11:15 – 12:30
Process Simulation & Optimization – I
Room 19

11.15 585 Modeling of high and low-pressure separator units in high-pressure LDPE plants
P Pladis, A Baltsas, C Kiparissides
AUT & CPERI, Greece

11:33 2306 One dimensional modelling of conical spouted beds
D Rivera, G Lopez, M J San José, S Alvarez, H Altzibar, M Olazar
Universidad del Pais Vasco, Spain

11:51 2215 Distributed moisture content in a continuous fluidized bed dryer
C Kettner, M Peglow, T Metzger, E Tsotsas
Otto von Guericke University, Germany

12:09 1268 Automated inference of chemical reaction networks
P J English, D P Searson, M J Willis, A R Wright
Newcastle University, UK

T6-1 11 Monday 17/9 11:15 – 12:30
Chemical Engineering Education - New Directions
Room 16

11:15 110 Chemical Engineering Education, where to now? – A global view
D Wood
Univ of Melbourne, Australia

11:40 2297 CHEMEPASS - Chemical Engineering Passport
S Gagneur
CPE Lyon, France

12:05 2276 Features of chemical engineer to education in Ukraine and Bologna process
M Zgurovskiy, I Astrelin, G Statyukha, T Bojko
National Tech Univ of Ukraine, Ukraine

T6-3 12 Monday 17/9 11:15 – 12:35
Teaching Chemical Product Design & Engineering
Aud-11

11:15 1173 Chemical product engineering teaching: opportunities and challenges
R Costa[a], P M Saraiva[b], E L Cussler[c], G D Moggridge[a]
[a]University of Cambridge, UK
[b]University of Coimbra, Portugal
[c]University of Minnesota, USA

11:35 1469 Transport Phenomena in Product Engineering
J A Wesselingh[a], H W Frijlink[a], T Johannessen[b]
[a]University of Groningen, Netherlands
[b]Amminex A/S, Denmark

11:55 1560 Computer-Aided Chemical Product Design - an M.Sc. Course
J Abildskov, R Gani
Technical University of Denmark, Denmark

12:15 2321 Teaching Chemical Product Design and Engineering
A A Broekhuis
University of Groningen, Netherlands

S7-A 13 Monday 17/9 11:15 – 12:35
Environmental Protection & Sustainability - I
Hall – A2

11:15 2102 Biodegradation Of Irradiated Toxic Aromatic

Compounds
B O Oboirien, E M N Chirwa
University of Pretoria, South Africa

11:35 2245 Degradation Of Textile Dyes By Application Of Ultrasound
H T Gümüşdere, A Güvenç, Ü Mehmetoğlu
Ankara University, Turkey

11:55 3327 Novel Catalytic Non-Thermal Plasma Reactor for the Destruction of Volatile Organic Compounds
L K Minsker, C Subrahmanyam, A Renken
EPFl, Switzerland

12:15 3188 Modelling of Bulk and Surface Reactions during Electrochemical Oxidation of Organic Compounds at BDD Anodes
M Mascia, A Vacca, S Palmas, A M Polcaro, F Ferrara
Universita di Cagliari, Italy

S7-B 14 Monday 17/9 11:15 – 12:35
Environmental Protection & Sustainability – II
Hall A3

11:15 3763 Alternative Fuels in Cement Production – Contributing to a Sustainable Future
M B Larsen
FLSmidth A/S Denmark

11:35 1174 Incorporating Sustainability Into The Superstructural Synthesis Of Municipal Solid Waste Management
N I Bedenik, Z Kravanja
University of Maribour, Slovenia

11:55 498 Sustainable Active Pharmaceutical Ingredient production through efficient resource intake: quantifying feedstocks, mass agents and utilities by one single metric
J Dewulf[a], G V Vorst[a], W Aelterman[b], H V Langenhove[b]
[a]Ghent University, Belgium
[b]Janssen Pharmaceutica nv, Belgium

12:15 1920 Application of the water source diagram procedure (WSD) for freshwater minimization in a batch process
A P S Immich, M Gusatti, J M M Mello, S G U Souza, F L P Pessoa
Federal Univ of Santa Catarina, Brazil

T1-P 15 Monday 17/9 13:30 – 15:00
Poster Session
Exhibition Area

T1-P1 Modelling, design & analysis of processes with Ionic Liquids

3884 Equilibria in the mixed solvent system Glycol-NaOH-CO2-Water applied to corrosion modelling
P L Fosbøl, K Thomsen, E H Stenby
Technical University of Denmark, Denmark

803 Selection of ionic liquids for aromatic/aliphatic separations and determination of LLE data supported by COSMO-RS
A B Hansmeier, M M Ruiz, G W Meindersma,A B de Haan
University of Eindhoven, Netherlands

2036 The se of ionic liquids as efficient media in olefin/paraffin separations
A Ortiz, A Ruiz, D. Gorri, I Ortiz
University of Cantabria, Spain

2048 Amino-acid recovery using ionic liquids: Partitioning in water + ionic liquid systems
O Rodríguez, P P Madeira, E A Macedo
Universidade do Porto, Portugal

2967 Multi-functional catalysts for process intensification
R Knapp, T. Müller, J A Lercher
TU Munchen, Germany

3205 Ionic liquids as clean alternative to organic solvents for lipase-catalyzed ester synthesis in non-conventional media
F J Hernandez-Fernandez, A P de los Rios, D Gomez, F. Tomas-Alonso, M Rubio, G Víllora
University of Murica, Spain

4137 Density prediction for ionic luquids using COSMO-RS
J Palomar[a], V R Ferro[a], J Torrecilla[b], F Rodriguez[b]
[a]Universidad Autónoma de Madrid, Spain
[b]Universidad Complutense de Madrid, Spain

T1-P3 Environmental Engineering & Management

121 Reduction in toxicity of the slag generated during the secondary lead process
G M F Gomes, L D Zen
Univ Federal do Rio Grande do Sur, Brazil

331 The use of an oxidative pre-treatment method for increasing the efficiency of anaerobic digestion of waste activated sludge
R Dewil[a], L Appels[b], J Baeyens[c]
[a]University of Antwerpen, Belgium
[b]Catholic Univ of Leuven, Belgium
[c]University of Birmingham, UK

456 Power consumption in a mineralization of direct red 23 azo dye in a sequencing batch reactor
F Morales-Guzman, R M Melogza-Aleman, R J Romera
Univ Autonoma det Estado de Morelos, Mexico

1593 Mineralization of organic compounds in wastewater by O3 & O3/H2O2 advanced oxidation systems
A Rodriguez, R Rosal, J A Perdigon, E Garcia-Calvo, P Leton, K Boltes, S Gonzalo, A L Petre, A Fernandez-Alba, M J Martinez Bueno, M Mezcua
Universidade del Alcala, Spain

683 Double-pass flat-plate solar air heaters with external recycle
C D Ho, R C Wang, T C Chen
Tamkang University, Taiwan

792 Carbonization of empty fruit bunch using hydrothermal method
S Inoue
National Institute of davanced Industrial Science & Technology, Japan

1043 Application of self-organising map (SOM) artificial neural networks for the chemical assessment of sediment quality
M Alvarez-Guerra, C Gonzalez-Pinuela, A Andres, J R Viguri
University of Cantabria, Spain

1732 Treatment of textile dyes effluents by laccase mediator system
A P M Tavares, R O Cristovao, J M Loureiro, R R Boaventura, E A Macedo
University of Porto, Portugal

1774 Treatment of oil waste water toolkit
A Troyankin, O Akhacheva, N Menshutina, O Sidorkin, Y Avramenko
Mendelev Univ of Chemical Tech, Russia

2376 Release of K from the system: K-Ca(-Si)-P – The Effects of the Ca/Si- and Ca/P-ratios
A Novakovic, F Frandsen, P A Jensen, S van Lith, L B Holgersen
Technical University of Denmark, Denmark

2456 Information system for phosphorus-containing compounds
P Seferlis[a], J Klemes[b], I Bulatov[b], P Kapustenko[c], L Puigjaner[d], A Bojarski[d], R Suleymanov[e], E Koltsova[e]
[a]CPERI, Greece
[b]The University of Manchester, UK
[c]SODRUGESTVO-T, Ukraine
[d]UPC – ETSEIB, Spain

3138 Towards sustainability in conceptual process design: Petroleum refinery
F Emun, M Gadalla, L Jimenez
University Rovira i Virgili, Spain

3491 CWAO of phenol over activated carbon catalysts with hydrogen peroxide as promoter
A Quintanilla, J A Casas, J J Rodriguez
Autonoma University of Madrid, Spain

4014 4014 - Arsenite Adsorption Upon Activated Carbon And Its Pva-composite
N Deveci, A Aydin
Istanbul Technical University, Turkey

T1-P4 Sustainable & Clean Technologies-I: Extraction & Remediation

265 Removal of acid orange 7 (AO7) by UV/H2O2 oxidation in the presence of dye auxiliaries
A Anglada, M J Rivero, A Uritaga, I Ortiz
University of Cantabria, Spain

323 Optimal water purification using low grade waste heat – an ecological proposal
R J Romeroa, A Rodrígueza, M L Domíngueza, A Huicocheab
Univ Autonoma del Estadio del Morales, Mexico

454 Removal of heavy metals by ultrafiltration
X Bernat, I Sanchez, F Stuber, C Bengoa, A Fortuny, A Fabregat, J Font
University Rovira I Virgili, Spain

765 Evaluation of the capacity of adsorption of CO2 in commercial zeolites on PSA pilot plant
Y Lima, P Guimaraes, S Bello, L Carvalho, D Lisboa, R Carvalho, E. Santos
Universidade Salvador, Brazil

1957 Color removal from textile effluent using Azadirachta indica leaf powder as an adsorbent
A P S Immich, S G Ulson de Souza, A A Ulson de Souza
Federal Univ of Santa Cateriina, Brazil

2158 Catalytic wet oxidation for abetement of textile dyes
S Rodríguez, A Santos, P Yustos, M de Gracia, F Garcia-Ochoa
Univ Complutense de Madrid, Spain

2361 Impact of non-biodegradable contaminants on long term performance of semi-industrial-scale MBR (membrane bioreactor) for dilute swine wastewater with direct reuse of treated water
N Prado
ENSC-Rennes, France

2364 Removal of benzalkonium chloride by polymeric adsorbent
I Turku, T Sainio, E Paatero
Lappeenranta University of Technology, Finland

2437 Modeling of the imbibition of polypropylene fiber cloth with emulsions
J Sek
Lodz Technical University, Poland

3701 Aplicability of the spouting regime for drying of biomass wastes in conical spouted beds with a draft tube
M J San Jose, S Alvarez, A Ortiz, A Morales, J Bilbao
Universidad del pais Vasco, Spain

3851 Removal of As, Cd, Cr, Cu, Ni and Zn from polluted water using an iron based sorbent
H Genç-Fuhrman, P Wu, Y Zhou, A Ledin
Technical University Of Denmark, Denmark

T1-P5 Sustainable & Clean Technologies-II: Energy Production

790 Biodiesel production by thermomyces lanuginosus and rhizomucor miehei immobilised in hydrophilic polyurethane foam
N Dizge, D Y Koseoglu, B Keskinler
Gebze Institute of Technology, Turkey

1035 Enzymatic transesterification of Hungarian rapseed and sunflower oils
M Krár, S Kovács, M Neményi, J Hancsók
University of Pannonia, Hungary

2020 Lipase-catalyzed synthesis of biodiesel
J M Cerveró, J R Alvarez, S Luque, J Coca
University of Oviedo, Spain

3292 Reduction of stillage 's volume in the production of ethanol by recirculation
G A Castro, L A Caicedo
Universidade Nacional Abierta Y a Distancia, Colombia

3561 Development of an ethanol production process with stillage recycling at bench-scale
G A Castro, I D Gil
Universidade Nacional Abierta Y a Distancia, Colombia
Universidad de los Andes, Spain

T1-P6 Sustainable & Clean Technologies - III: Combustion & Emission

882 Modeling and prediction of ammonia emission from field-applied animal manure
Y-I Lim, Y-S Moon
Hankyong National University, South Korea

1486 1486 - Wood in pulverized fuel power plants: Char characterization and char combustion
M Dall'Ora, P A Jensen, A D Jensen
Technical University fo Denmark, Denmark

1747 Production and CO2 adsorption characteristics of activated carbon from Bamboo by CO2 activation method
Y-CI Bak, J-H Choi
Gyeongsnag National Universidad, Korea

1999 Reduction of NO by acetylene soot
T Mendiara, m U Alzueta, a Millera, R Bilbao
University of Zaragosa, Spain

2178 Catalyst selection for the coupled methanol/paraffins cracking process
D Mier, A T Aguayo, J Ereña, A Alonso, J Bilbao
University of Basque country, Spain

3320 How to deal with one of the main obstracles for an increased use of CO2 neutral biomass in power plant boilers - Optimal ash deposit removal in straw fired boilers
P A Jensen, H Zhou, F Frandsen
Technical University of Denmark, Denmark

T1-P8 SCF as Solvent Substitutes

2879 Novel PVDF-HFP membranes tailored by supercritical drying process

S Cardea[a], A Gugliuzza[b], C Rapuano[a], M Sessa[a], M C Aceto[b], E Drioli[b], E Reverchon[a]
[a]University of Salerno, Italy
[b]University of Calabria, Italy

356 Supercritical extraction of valeriana officinalis L. roots. Mathematical modeling and experiments
A R Salimi, S Fatemi, H zakizadeh, A Safaralie
Tehran University, Iran

528 528 - Supercritical fluid extraction, Hydrodistillation and Soxhlet extraction of the aerial part of winter savory: Comparative evaluation of the extraction method on the chemical composition
A C Grosso[a], M A Tavares-Cardoso[a], A C Figueiredo[d], M Moldào-Martins[c], J Burillo, J S Urieta, J G Barroso[c], J A Coelho[c], A M Palavra[a]
[a]Instituto Superior Tecnico, Lisbon, Portugal
[b]Instituto Superior de Agronomia, Portugal
[c]Faculdade de Ciencias de Lisboa, Portugal

559 Acid heterogeneous catalysis in supercritical media : application to isobutane alkylation by light olefins
M Montillet, D Guillaume, N Essayem
IFP, France

741 Predicting solubility of tributyl phosphate in supercritical carbon dioxide
R Orouj, H Abolghasemi, M Mahdavian, M Tabasi
Tehran University, Iran

2471 2471 - Extraction of heavy metals from CCA treated wood by supercritical fluids
E G Søgaard, D A Ankrah
Aalborg University, Denmark

2804 Extraction of phytoecdysones with ethanol-modified supercritical CO2
H Sovova, M Sajfrtová, M Pavlik
Institute of Chemical Process Fundamentals, Czech Republic

3344 Comparison of predictive models for determination of supercritical fluids solubility in heavy oils
C E P Siqueira Campos, P W Falcào, F L P Pessoa, A M C Uller
Federal University of Rio de Janeiro, Brazil

T2-P1 Thermodynamics – Poster

1 The use of Cyclic coordinate search, BFGS and FRPR methods for estimation of parameters of GE models in Binary VLE
A R Prasad, J S Babji, A A Kumar, C Sreedevi
Andhra University, India

9 Comparison of Local Composition Models for estimation of parameters in Binary Vapor Liquid Equilibria
A R Prasad, J S Babji, A A Kumar
Andhra University, India

17 Correlation of Binary VLE by GE models: Comparison of Four Unconstrained Optimization Methods
A R Prasad, J S Babji, A A Kumar, B U S N Babu
Andhra University, India

445 Determination of solubility parameters of polymers by using intrinsic viscosity method
G Ovejero, P Pérez, M D Romero, E Díez, I Guzmán
Universidad Complutense de Madrid, Spain

472 Forecasting of Hydrate Formation Pressure for Natural Gas Using Artificial Neural Network
A Heydari, K Shayesteh, H Shayeghi
University of Mohaghegh Ardebili, Iran

552 Evaluation of statistical mechanics-based equations of state for complex fluid mixtures
I G Economou[a], E K Karakatsani[a], A Grenner[c], I Tsivintzelis[b], C Panayiotou[b], G M Kontogeorgis[c]
[a]NCSR-Demokritos, Greece
[b]Aristotle Univ of Thessaloniki, Greece
[c]Technical University of Denmark, Denmark

783 Estimations on the selectivity of the nickel dithiolene in the olefins separation
Q Han, H Wen, Y Zhao
Chinese Academy of Science, China

795 Solubility of polyhydroxyalkanoates by Thermodynamic predictions
N Jacquel[a], C Lo[b], H Wu[b], Y Wei[b], S Wang[b]
[a]ESCPE-Lyon, France
[b]Yuan Ze University, Taiwan

806 Speeds of Sound, Isentropic Compressibilities and Excess Molar Volumes of Mixtures of 1-Alkanol + Dibutyl Ether at 293.15, 298.15 and 303.15 K
I Mozo, I G de la Fuente, J A González, J C Cobos
University of Valladolid, Spain

827 Prediction of Speeds of Sound and Ultrasonic Studies of Hydroxyether + Organic Solvent Mixtures
J A González[a], I Mozo[a], I García de la Fuente[a], J C Cobos[a], N Riesco[b]
[a]University of Valladolid, Spain
[b]Loughborough University, UK

860 Determination of Cloud Points of Poly (propylene glycol) Aqueous Mixtures Using Particle Counting Method
A Eliassi, A Parach
IROST, Iran

992 Application of the simplified PC-SAFT Equation of State to Complex Phase Equilibria of Ethylene Glycol Oligomers
A Grenner, G M Kontogeorgis, N Solms, M L Michelsen
Technical University of Denmark, Denmark

1004 Modeling of Vapor-Liquid Equilibrium in Gas-Aqueous Electrolyte System using Neural Network Models
A Ghaemi[a], S Shahhoseini[a], M G Marageh[b]
[a]Iran Univ of Science & Tech, Iran
[b]AEOI, Iran

1075 Modelling lubricating oil fractions by means of a pseudo-component model
J J Espada[a], B Coto[a], R Grieken[a], J L Peña[b]
[a]Rey Juan Carlos Universidad, Spain
[b]REPSOL-YPF, Spain

1240 Develop a correlation of convective coefficient in a vertical evaporator with boiling processes inside pipes where the flow is stagnant
J C García, J F León, J A Aguinaco
University of Carabobo, Venezuela

1473 Prediction of Binary Adsorption Equilibria
M A Monsalvo, A A Shapiro
Technical University of Denmark, Denmark

1745 Experimental data and correlation of surface tension of binary polymer solutions at different temperatures and atmospheric pressure
M T Mazandarani, A Eliassi, M Fazlollahnejad
University of Tehran, Iran

1636 Group-contribution based method for surface tension estimation
A Martinho[a], H A Matos[a], R Gani[b]

[a]*Instituto Superior Tecnico, Portugal*
[b]*Technical University of Denmark, Denmark*

1766 Thermodynamic modelling of Butadiene Extractive Distillation Plant
N Farhadian[a], M A Mosavian[a], S Maghsoudi[b]
[a]*University of Tehran, Iran*
[b]*Iran Univ of Science & Tech, Iran*

2312 Thermodynamics of pervaporation process in reacting systems
A Toikka, A Penkova
St. Petersberg State University, Russia

2401 On the stability analysis of phase diagrams of multicomponent systems
A Toikka, R Ralis
St. Petersberg State University, Russia

2429 Correlations for predicting solution gas-oil ratio, bubblepoint pressure and oil formation volume factor at bubblepoint of Iran crude oils
M T Mazandarani, S M Asghari
Mazandarani University, Iran

2808 Development of Group Contribution Plus Property Models for Organic Systems
H E González, J Abildskov, R Gani
Technical University of Denmark, Denmark

2884 A new extended UNQUAC model for solid-liquid equilibria of organic solvents+iPBu-1 systems
H Salimnezhad, F Feyzi
Iran Univ of Science & Tech, Iran

2913 Fatty acids systems under high pressure: caprylic + myristic acids and lauric + myristic acids
M C Costa[a], M A Krähenbühl[a], A J A Meirelles[a], J L Daridon[b], J Pauly[b], J A P Coutinho[c]
[a]*State Univ of campinas, Brazil*
[b]*Universite de Pau, France*
[c]*Aveiro University, Portugal*

3106 Global Phase Equilibrium Calculation and Critical Phase Behavior from a Group Contribution Equation of State in Binary Mixtures
N Reshadi, F Feyzi
Iran Univ of Science & Tech, Iran

3215 Predicting branching structure effects on the thermodynamic properties using COSMO-RS
W Arlt, O Spuhl, L Wang
Universität Erlangen-Nürnberg, Germany

3573 Prediction of Wax Precipitation Using Solid Equation of State
M V Sefti[a], H Mehdizadeh[a], A Mousavi[b]
[a]*Tarabiat Modares University, Iran*
[b]*Iran's Research Institute of Petroleum Industry, Iran*

5001 Vapor pressures for compounds of technological and environmental interests: Experimental and recommended data
K Růžička[a], M Fulem[a,b], J Pangrác[b], T Šimeček[b], V Růžička[a], E Huliciusb, E Samochinb, P Morávek[a]
[a]*Institute of Chemical Technology, Czech Republic*
[b]*Institute of Physics, Czech Republic*

T2-P3: Particulate Systems – Poster

147 Flow property measurement using the Jenike shear cell for 7 different bulk solids
S Çagli, N Deveci, H Okutan, A A Sirkeci, Y Teoman

383 Drag on two co-axial rigid spheres moving normal to a plane: newtonian and Carreau fluids
J P Hsu, S C Yang, J C Chen

438 Efficient Treatment and Control of Concentrated Particulate Waste Streams
Q Omokanye, S Biggs

496 Solid-Solid Reactions in Fluidized Bed
J S Murthy, T Sankarshana, S R Venna

722 Characteristics of Gas -Solid Fluidization in Tapered Beds
J S Murthy, T Sankarshana

952 Characterization of metal powder suspension to improve the functionality of cemented carbides
Y Komoda, D Takafuji , H Usui

999 Nonlinear Prediction of Fluidized Bed Pressure Fluctuation
R Zarghami, N Mostoufi, R Sotudeh-Gharebagh

1222 A phenomenological Description of Mixing-Segregation Effects during Shear Deformation of Particulate Solids
V Dolgunin, V Borschev, A Klimov, R Shubin

1298 On-line measurement of crystal complexity
N Ferreira, N Faria, F Rocha

1346 Influence of hydrodynamic conditions on particle size distribution
A A Öncül, D Thévenin

1830 Understanding the dissolution of a mineral material in formic acid
H Grénman, J Gustafsson, T Salmi, D Y Murzin

2233 Prediction of product particle size distribution using batch grinding equation
G Matijašić, K Žižek, M Hraste

2842 Gravity Separation Technology of Grain Materials Differ in Complex of Physical and Mechanical Properties of Particles
V Dolgunin, O Ivanov, A Kudy, A Klimov

3514 Experimental Investigation of a Rotating Fluidized Bed in a Static Geometry
J De Wilde, G B Marin, G J Heynderick, A de Broqueville

4033 Size Separation of Rubber Particles from Natural Rubber Latex by Hydrocyclone Technique
K Pana-Suppamassadu, S Amnuaypanich

T2-P7: Transport Phenomena in Porous/Granular Media – Poster

352 Influence of the adsorbent particle size distribution on the adsorption parameters from stirred tank dynamic experiments
J A Hernández, J O Marroquin, B Castro, G C Laredo, J A Ochoa

729 Mathematical modeling of hydrodynamic processes in high-porous open cell ceramic foams
A S Shaimardanov, A I Kozlov, A V Jensa, V A Kostikov, E M Koltsova

1208 The break-up of jet in non-Newtonian systems
M Ochowiak, L B Press, S Woziwodzki

1450 Hydrodynamics in a Packed Bed Reactor with Low Tube-to-Particle Diameter Ratio
C C Araiza, F L Isunza

1707 Dynamics of flow pattern in baffled mixing vessel with axial impeller
O Brůha, T Brůha, I Fort, M Jahoda

1937 Drying kinetics of granular Nylon-6
S Suherman, M Peglow, E Tsotsas

2120 Heat transfer on a sphere at different inflow turbulence
L Bogusławski

2131 A non-isothermal pore network drying model: influence of gravity
V K Surasani, T Metzger, E Tsotsas

2140 Expansion of starch during thermal pressure forming
S Jan, Ž Rudolf

2911 Mathematical modelling of the Drying Curves of hemispherical solids
S Simal, M C Garau, J Cañellas, J Bon

3045 Mathematical modeling of transport and separation properties of permselective membranes
L Seda, J Kosek

3383 Numerical Investigations of Fluid Flow and Lateral Fluid dispersion in Bounded Granular Beds in a Cylindrical Coordinates System
A Soleymani, I Turunen

3589 Heat exchange between a fluidised bed and an immersed cylinder: estimation of local heat transfer coefficient
F D Natale, A Lancia, R Nigro

4037 The effect of biofilm growth on hydrodynamic properties of bioreactors
M Karrabi, P Séchet, C Morra, C Geindreau, J Martins, ACartellier

4054 A Study of Force Response in Pellets of Herbal Spa Salts using Discrete Element Method (DEM) Computer Simulation.
T Kangsadan, S Promkotra

T6-P: Chemical Engineering Education –Poster

338 Problem-based Learning For A Chemical Engineering Subject
R Aldaco, F San Roman, I Ortiz, A Irabien

429 A new education model in the FCQEI – UAEM
V León-Hernández, R M Melgoza–Alemán, L O Osornio-Alcaraz, M L Domínguez-Patiño

1395 Implementation Of A Virtual Course With Moodle Applied To A Case Study Methodology In Chemical Engineering Degree
S L Yagüe, Mª T G Cubero, S B Rodríguez, P A G Encina, G G Benito, M Á U Alonso D Álvarez

1015 E-learning in Process Control Education
M Bakosova, M Fikar, L Cirka

1684 Attracting High Potential Students taking Environmental Engineering as an Example
A Blesgen, V C Hass

1934 A Structured Immersive Learning Environment for Process Engineering Based on Real VR
I T Cameron, C Norton

2493 Simulation based Optimization of the Control of a Waste Heat Boiler during an In-House Control Seminar
V C Hass, A Schauenburg , K-M Schoop, D Ringel, A van Schooten

2671 Materials Science In Chemical Engineering Education
I Zvereva, A Toikka, I Murin

S-7P: Environmental Protection & Sustainability (EPS - Poster)

923 Influence Of Wastewater Treatment In The Life Cycle Assessment Of Aluminium Trifluoride
A Dominguez, R Aldaco, A Irabien

574 Removal of Carbon Dioxide by Absorption in a Cross-flow Rotating Packed Bed
C C Lin, B C Chen

577 Correlation of the equilibrium sorption of crude oil by expanded perlite using different adsorption isotherms at 298.15 k
A Alihosseini, V Taghikhani, A A Safekordi, D Bastani

1688 Anaerobic Treatment Of Phenol In A Continous Fluidized-bed Biorreactor
M S Gonzalo, M Martínez, P Letón

1783 Effects of Synthetic Temperature on the Microstructures and Basic Dyes Adsorption of Titanate Nanotubes
K S Lin, C Y Pan, W R Chen, C P Lie, T P Peng

1963 Evaluation of the Chemical Absorption Technology for CO2 Capture of Industrial Gases Using Monoethanolamine (MEA)
L Carvalho, A S Belloa, M L Andradea, W Diasa, Y Limaa, P R B Guimarâesa

2029 Numerical models to simulate pollution scenarios in Somes River
E C Ani, P Ş Agachi

2155 Modelling of metal pollutant transport in natural humic environments
P Sedláček, M Klučáková

2231 Proposing The Most Efficient And Environmental Safe Hydrocyclone To Depurate Ballast Water From Ship Hulls
L F Martínez, A G Lavín, M M Mahamud, J L Bueno

2402 Arsenic removal from copper smelter wastewater by electrocoagulation in an airlift reactor
H K Hansen, P Nuñez, C Jil

2465 Catalytic pyrolysis of high-density polyethylene on HZSM-5 and HY zeolite catalysts in a conical spouted bed reactor
G Elordi, G Lopez, M Arabiourrutia, M Olazar, R Aguado, J Bilbao

2480 Catalytic hydroprocessing of polychlorinated derivatives of aromatic compounds
K L Zanaveskin, L N Zanaveskin

2550 Different adsorption isotherms of carbon dioxide on raw and impregnated activated carbon
M R Mehrnia, M M M Rahmati, M Safari, H D Amrei, A Ghanizadeh

3033 Oxygen transfer rate and acetone uptake rate in the airlift reactor using bacteria immobilized on solid particles creating the inverse fluidized bed
B K Pietrenko, M Łazarczyk

3224 Novel metal oxide catalysts for low temperature selective catalytic reduction of NO with ammonia
H Hamma, J Huang, A Riisager, S B Rasmussen, R Fehrmann

3639 An Experimental Comparison Of A Heat Exchanger In An Absorption Heat Transformer Operating In Falling Film And Pool Boiling
S Silva, A Huicochea, J Siqueiros

4012 Parametric Optimization Of Cadmium And Chromium Adsorption On The Mediterranean Seagrass Posidonia Oceanica By Surface Response Analysis
A Aydin, N Deveci

T1-8 16 Monday 17/9 15:00 – 17:00
SCF as solvent substitutes
Room 16

15:00 1372 Kinetics and specificity of lipozyme-catalysed oil hydrolysis in supercritical CO2
H Sovova, M Zarevucka

15:20 587 Continuous selective oxidation of alcohols in

supercritical carbon dioxide
J-D Grunwaldt, M Caravati, A Baiker

15:40 502 Supercritical antisolvent micronization of minocycline hydrochloride
M A Tavares Cardoso, G A Monteiro, J P Cardoso, T J V Prazeres, J M F Figueiredo, J M G Martinho, J M S Cabral, A M F Palavra

16:00 508 Properties and characterization of silica aerogel-metal composites produced by a supercritical impregnation process
G Caputo, E Reverchon

16:20 2964 The role of pressure at the limit of the dispersion stability in the polymerization of methyl methacrylate in supercritical carbon dioxide
C Mantelis, T Meyer

16:40 3402 3402 - Micro-encapsulation of particles with chitosan
R Carvallo, A K Sunol

T2-1b 17 Monday 17/9 15:00 – 17:00
Applications of Equations of Sate
BV1

15:00 3209 Prediction and correlation of the phase behaviour of non-ideal binary systems by combining an equation of state with the COSMO-RS model
O Spuhl, W Arlt

15:20 140 Modeling of Associating Mixtures for applications in the oil and gas and chemical industries
G M Kontogeorgis, M L Michelsen, G Folas, N Solms, E H Stenby

15:40 1164 Mutual solubilities of hydrocarbons and water with the CPA EoS
M B Oliveira, J A P Coutinho, A J Queimada

16:00 1170 Modelling Hydrogen-Bonding Fluid Mixtures using Insight Gained from Spectroscopy
N Solms, J L Kofod, L Jensen, C P Passos, S O Derawi, S I Anderson, M L Michelsen, G M Kontogeorgis

16:20 2627 Surface tension of chain molecules - A combination of the gradient theory with the CPA EoS
M B Oliveira, J A P Coutinho, A J Queimada

T2-2b 18 Monday 17/9 15:00 – 17:00
Chemical Reaction Engineering: Advanced Concepts
Room 20

15:00 2313 Hydrogenation of pyrolysis gasoline in pilot trickle-bed reactor with periodic modulated feed rate
V Tukač, M Handlová, V Chyba, J Lederer, J Kolena, J Hanika, V Jiřičný, P Stavárek

15:20 3386 Experimental and model based analysis of single und multi stage membrane reactors for the oxidation of short-chain hydrocarbons in a pilot scale
C Hamel, Á Tóta, F Klose, E Tsotsas, A S Morgenstern

15:40 966 Rapid treatment of trace toluene in air with an air cleaner consisting of a continuous adsorption and desorption concentrator and photocatalytic reactor with a parallel array of nine light sources
F Shiraishi, T Ishimatsu, K Tateishi, H Shima, H Yamamoto

16:00 3625 Super-Critical Fluids as Reaction Media for Fischer Tropsch Synthesis
C B Roberts, E Durham

16:20 600 An unusual application of chemical reaction engineering: the evolution of a crude oil reservoir. Of the use of intelligent lumping.
R Bounaceur, G Scacchi, P M Marquaire, G Wild, F Dominé, R Michels

16:40 2023 Internal diffusion coupled to hydrogenation kinetics in supported ionic liquid catalysts (Silicas)
J-P Mikkola, L Myreen, P Virtanen, T Salmi, J Wärnå

T2-3 19 Monday 17/9 15:00 – 17:00
Particulate Systems
Hall A2

15:00 2847 A three-dimensional population balance model of granulation employing mechanistic kernels
R Ramachandran, J Poon, F Stepanek, F Doyle, J Litster, I Cameron, C Immanuel

15:20 360 Enzyme Degradation during Spray Drying
J Sloth, P Bach, S Kiil, A D Jensen

15:40 556 Application of X-ray tomography to the characterization of single granules
D B Medrano, G K Reynolds, A D Salman, M J Hounslow

16:00 2417 Electrostatic characterization of electrohydrodynamic atomization process for polymeric particle fabrication
J Yao, J Xie, L K Lim, J Hua, C H Wang

16:20 2176 "Smart" polyesters for nanoparticles synthesis and stabilization
A Voronov, A Kohut, W Peukert

16:40 481 Effect of temperature on hydrodynamics of bubbling fluidized beds
S Sanaei, N Mostoufi, R Radmanesh, R S Gharebagh, J Chaouki

T2-5b 20 Monday 17/9 15:00 – 17:00
Multifase Flows – II
Hall A1

15:00 1121 Innovative μ-PIV measurement technique for film flow investigations
S Paschke, I Ausner, J U Repke, G Wozny

15:20 1437 Bubble Size Distribution and Two-Phase Pressure Drop in Thin-Gap Microchannel
J Kristal, J Havlica, V Jiricny

15:40 3146 Transition from the perfect core-annular flow in a constricted tube to unsteady – stratified, bubbling, pulsing and spray – flow regimes
M Zacharioudaki, Y Dimakopoulos, J Tsamopoulos

16:00 1198 Mixing time of surface active agent solutions
L B Press, S Rozanska, I Szrajbrowska

16:20 2254 Influence of the Liquid Phase Physical Properties on Unsteady-State Hydrodynamics in Periodically Operated Trickle-Bed Reactors
B Brkljac, T Bludowsky, W Dietrich, M Grünewald, D W Agar

T2-10b 21 Monday 17/9 15:00 – 17:00
Distillation, Absorption & Extraction – II
Room 18

15:00 341 New Approach to Energy Efficient Chemical Process Design
A Lucia, A Amale, R Taylor

15:20 3286 Energetic Analysis of a Crude Distillation Plant: a Case Study
M Mascia, M Errico, G Tola

15:40 399 Multicomponent rectification: Representation of number of stages as function of reflux ratio
J Bonet, M I Galan, J Costa, X M Meyer, M Meyer

16:00 1576 A Systematic Synthesis Framework for Extractive Distillation Processes
S Kossack, K Kraemer, R Gani, W

Marquardt

16:20 368 Methods for Extractive Distillation Flow Sheets Synthesis
L Ivanova, A Timoshenko, E Anokhina

16:40 431 Conceptual Process Design for Aromatic/Aliphatic Separation with Ionic Liquids
G W Meindersma, A B de Haan

T3-1 22 Monday 17/9 15:00 – 17:00
Nanotechnology & Nanomanufacturing
Room 17

15:00 769 Nanopowders produced by electrical explosion of wires
O Nazarenko

15:20 1232 Combining flame spray pyrolysis and high throughput experimentation for preparation and testing of multi-component noble metal catalysts
S Hannemann, J-D Grunwaldt, S E Pratsinis, A Baiker

15:40 3548 Fractionation of metal and semiconductor nanoparticles and their deposition into wide area thin films and ordered arrays using CO2-expanded liquid solutions
C B Roberts, M Anand, J Liu

16:00 164 Dynamics of speroidal particle in a leaky dielectric medium in the ac electric field
Y Dolinsky, T Elperin

16:20 1781 Synthesis, characterization, and hydrogen storage capacity of magnesium hydrides on multi-walled carbon nanotubes
K-S Lin, C-Y Pan, C-P Liu, W-R Chen, T P Perng

T3-3a 23 Monday 17/9 15:00 – 17:00
Analysis of Energy Issues
Aud-12

15:00 1894 Possibilities of microbial method of enhanced oil recovery Implementation in Danish chalk rocks
S Rudyk, H Andersen, L W Jørgensen, I B Awasi, J Enas, A Jimoh

15:20 804 Sweet sorghum biomass fermentation: modeling of hydrogen and methane production based on ADM1
G Antonpoulou, H N Gavala, I V Skiadas, G Lyberatos

15:40 3360 On the modeling of metabolic products distribution during fermentative hydrogen production
H N Gavala, I V Skiadas, G Lyberatos

16:00 745 Economic study of water steam production by biomass or domestic waste incineration
R Rivera-Tinoco, C Bouallou, C Mansilla, F Werkoff

16:20 4174 Bio-ethanol: is the world on the wrong track?
H Wenzel

T4-7 24 Monday 17/9 15:00 – 17:00
Software Architecture, Standards & Interfaces
Aud-10

15:00 2970 Update on CAPE-OPEN standards and CO-LaN activities (Keynote)
M Pons

15:40 1313 ProSimPlus: New CAPE-OPEN capabilities in process simulation
S Déchelotte, A Vacher, O Baudouin, G Hameury

16:00 1617 Use of CAPE-OPEN standards in the interoperability between modelling tools (MoT) and process simulators (ProSim)
R Morales-Rodríguez, R Gani, S Dérchelotte, A Vacher, O Baudouinb

16:20 3177 Use of CAPE-OPEN standards in the coordinated optimization of plant production scheduling and supply-chain planning
J M Laínez, C Benqlilou, A Espuña, B. Ivanov, N. Vaklieva, L. Puigjaner

16:40 595 Designing with CAPE-Open
M P Breil, J Gabrielsen, N von Solms, G M Kontogeorgis, E H Stenby

T6-2 25 Monday 17/9 15:00 – 17:00
Teaching Methods, Techniques & Modules
Room 19

15:00 1672 Changing a Culture – A Project Centred Curriculum for Chemical Engineering Education
I T Cameron, C A Crosthwaite

15:20 1378 Computer Based Training in Biochemical Engineering
V C Hass , K-M Schoop , R Pörtner

15:40 2818 Teaching Sustainability to Chemical Engineers: Pedagogical and Practical Aspects
J Petrie, L Basson

16:00 298 Creating Effective e-Learning Presentations Quickly
D T Wu

16:20 2708 A Flexible Experimental Learning Environment for Contemporary Chemical Engineering Education
J Orelana

16:40 3557 Teaching Logic Control Systems to Chemical Engineering Students
Ruben Morales-Menendez,aLuis E. Garza Castañon, Ricardo A R Mendoza , I Y S Chávez, F G Elizalde

T6-2 26 Monday 17/9 15:00 – 17:30
Invited Session on MultiScale Modelling
Aud-11

15:00 4156 The necessary multi-scale and multidisciplinary approach of a modern chemical engineering for product design and engineering in the frame of globalization, sustainability and technical innovation
J-C Charpentier
CNRS-ENSIC-INPL, France

15:40 4160 Industrial application of modeling for different processes
M Wolf, A Juppke, H-J Leimkühler
Bayer Technology Services GmbH, Germany

16:10 4075 From molecular simulation to thermophysical properties : can we bridge the gap between the nanoscale and process scale?
P Ungerer
IFP, France

16:40 4084 Powders, Particles and Processes: Multiscale Approaches for Improved Performance
I Cameron
University of Queensland, Australia

S7-C 27 Monday 17/9 15:00 – 17:00
Environmental Protection & Sustainability – III
Hall A3

15:00 1511 A quantitative framework for Sustainability Assessment in the Process Industry
A Tugnoli, V Cozzani, F Santarelli

15:20 3664 Life Cycle Assessment Prognosis For Sustainability

M Shibasaki, S Albrecht

15:40 2260 Systems approach for the estimation and management of sustainable development
M Z Zgurovskiy, G A Statyukha

16:00 2373 Decision Support For Biotechnological Produced Peptides In A Design Stage By Sustainability Assessment
A S Albrecht, B U Bos, C M Shibasaki

16:20 3487 Analysis of the contribution of information management for the implementation of pollution prevention measures into process industries
A R Córdoba, P Sharratt, J A Sánchez

16:40 4083 Pollutants Emissions In A Urban Area: Definition Of Emission Factors, Atmospheric Dispersion Modelling And Support Of Intervention Policies
E Brizio, G Genon

T1-K1 28 Monday 17/9 17:05 – 17:45
Theme-1 Keynote Lecture
Hall A3

17:05 4085 CO2 from Capture to Storage
Pierre Le Thiez
IFP, France

T2-K1 29 Monday 17/9 17:05 – 17:45
Theme-2 Keynote Lecture
BV1

17:05 179 Prediction of properties of polymers through hierarchical simulations
D N Theodorou
National Tech Univ of Athens, Greece

T3-K1 30 Monday 17/9 17:05 – 17:45
Theme-3 Keynote Lecture
Aud-12

17:05 4088 Integration of Chemical Engineering Science into Pharmaceutical Process Research and Development
Neville LN Brewis
AstraZeneca, UK

T6-K1 31 Monday 17/9 17:05 – 17:45
Theme-6 Keynote Lecture
Aud-10

17:05 4161 Towards the European Higher Education Area: Curricula and Methods in Chemical Engineering
S. Feyo de Azevedo
University of Porto, Portugal

S-6 32 Tuesday 18/9 08:45 – 17:30
The Future of European Chemical Engineering Education in a Globalized World (See page 18 for the program**)**
Aud-11

T1-7 33 Tuesday 18/9 08:45 – 10:30
Selection & Use of Organic Solvents
Room 16

08 :45 1741 Development of systematic procedures for the evaluation of solvent selection at an early stage in pharmaceutical process
S Perez Vega, P Sharrat
The University of Manchester, UK

09:05 389 Solvent reduction in an industrial solid-liquid contactor
R Poirot[a], L Prat[a], C Gourdon[a], C Diard[b], A M Autret[b]
[a]INP-ENSIACET, France
[b]Pierre Fabre, France

09:25 3134 Propane + CO2 mixtures as near critical solvents, properties and mixture design
P Hegel, G Mabe, S Pereda, E A Brignole
Universidad Nacional del Sur, Argentina

09:45 3886 3886 - Biodiesel production using cosolvent
E Çağlar
Izmir Institute of Technology, Turkey

10:05 3827 A methodology for the design and selection of green solvents for organic reactions
M Folic[a], R Gani[a], C Jimenez-Gonzalez, D C Constable[b]
[a]Technical University of Denmark, Denmark
[b]GlaxoSmithKline, USA

T2-1d 34 Tuesday 18/9 08:45 – 10:30
Thermodyanmics: Molecular Simulation & Related Approaches
BV1

08 :45 1874 Molecular Simulation Algorithms for Predicting Solid-Liquid Phase Equilibria
R J Sadus
Swinburne Univ of Tech, Australia

09:05 3623 Transferable Potentials for Nitrates and Phosphates
J R Elliott
The University of Akron, USA

09:25 554 Molecular simulation and macroscopic modeling of thermo-dynamic and transport properties of silicon-containing rubbery polymer – solvent mixtures
I G Economou[a], Z A Makrodimitri[a], A Tihic[b], G M Kontogeorgis[b]
[a]NSCSR-Demokritos, Greece
[b]Technical University of Denmark, Denmark

09:45 1868 Thermodynamic Models from Fluctuation Solution Theory Analysis of Molecular Simulations
J Abildskov[a], S Christensen[a], GH Peters[a], FY Hansen[a], J P O'Connell[b]
[a]Technical University of Denmark, Denmark
[b]University of Virginia, USA

T2-5c 35 Tuesday 18/9 08:45 – 10:30
Multifase Flows – III
Hall-A1

08 :45 822 Structural and Practical Identifiability of a dynamic gas-liquid film model.
J N Laboulais, S C Cardona
UPV-EPSA, Spain

09:05 771 Simulation and measurement of gas holdup in bubble Columns
F Yamashita, T Suzuki
Kanagawa Institute of Technology, Japan

09:25 2857 Axial Dispersion Model for Simulation of an Airlift Bioreactor
I Sikula, J Markoš
Slovak Univ of Technology, Slovakia

09:45 755 Solids Flow Pattern in Gas – Flowing Solids – Fixed Bed Contactors
N Nikačević, M Petkovska
University of Belgrade, Serbia

10:05 1145 Lattice Boltzmann 3d flow simulations in a metallic foam, on a computing grid
D Beugre, M Crine, G Dethier, A Léonard, D Toye, P Marchot
University of Liege, Belgium

T2-11b 36 Tuesday 18/9 08:45 – 10:30
Filtration – II
Room 17

08 :45 285 Electrically enhanced ultrafiltration of enzyme solutions
A D Enevoldsen, E Hansen, G Jonsson
Technical University of Denmark, Denmark

09:05 2604 The effects of cross diffusion on the mass transport in the ultrafiltration of water/

lysozyme/ NaCl solutions
V Magueijo, V Semiao, M N Pinho
Instituto Superior Tecnico, Portugal

09:25 2391 The fouling and cleaning of ultrafiltration membranes for black tea liquor clarification.
P J Evans, M R Bird
University of Bath, UK

09:45 1067 Evaluation of tubular ceramic ultrafiltration membranes for the recovery of vanillin from Kraft black liquor
M Zabkova, E A B Silva, A E Rodrigues
University of Porto, Portugal

10:05 589 Computation of optimal production intervals for an ultra filtration plant processing surface water
E Zondervan, B Blankert, B Roffel
University of Groningen, Netherlands

T2-10c 37 Tuesday 18/9 08:45 – 10:30
Distillation, Absorption & Extraction – III
Room 18

08 :45 607 Mass Transfer Characteristics of Modular Catalytic Structured Packing
M Behrens[a], Ž Olujićb[b], P J Jansens[b]
[a]Air Products, UK
[b]Delft Univ of Tech, Netherlands

09:05 1357 Study and Design of a Heat Integrated Hybrid Pervaporation-Distillation Process
M T P Gómez, A Klein, J U Repke, G Wozny
Technical University of Berlin, Germany

09:25 377 Investigation of application of extractive distillation method in chloroform manufacture
L S Gordeev, M B Glebov, E M Koltsova, N V Hitrov
Mendeleev Univ of Chem Tech, Russia

09:45 644 Non-linear dynamics of packing layers in watered scrubbers
M A Serimbetov, A M Brener
State Univ of South Kazakhstan, Kazaakhstan

10:05 1611 Genetic Algorithm Approach in Prediction of Mass Transfer and Axial Dispersion Coefficients of Rotating Disc Liquid-Liquid Extraction Contactors
D Bastani, M Shahalami
Sharif Univ of Technology, Iran

T3-3b 38 Tuesday 18/9 08:45 – 10:30
Analysis of Environmental Issues
Aud-10

08 :45 392 Gypsum crystal degradation in wet flue gas desulphurisation plants
B B Hansen, S Kiil, J E Johnsson
Technical University of Denmark, Denmark

09:05 844 Fly ash and adsorption of air-entraining agents in concrete: influence of combustion conditions
K H Pedersen, A D Jensen, K Dam-Johansen
Technical University of Denmark, Denmark

09:25 2017 Techno-economic evaluation of a PVAm CO2-selective membrane in an IGCC power plant with CO2 capture
D Grainger, M-B Hägg
Norwegian Univ of Science & Tech, Norway

09:45 462 Evaluation of the capacity of adsorption CO2 in commercial zeolites on pilot plant
Y Lima, P Guimarães, S Bello, L Carvallo, D Lisboa, R Carvalho, E Santos
Universidade Salvador, Brazil

10:05 3381 Zero emission hydrocarbon-fueled vehicle transportation with fuel re-synthesis from on-board sequestrated CO2
M Musadi
The University of Manchester, UK

T3-5 39 Tuesday 18/9 08:45 – 10:30
Multiscale Modeling
Hall-A2

08 :45 584 Development of a multi-scale dynamic model for the prediction of polymer distributed properties in catalytic olefin polymerization slurry loop reactors
V Touloupides, V Kanellopoulos, G Dompazis, C Kiparissides
AUT & CPERI/CERTH, Greece

09:05 3633 Cyclization effects in continuum / dynamic Monte Carlo model of drying and curing in sol-gel silica films
S E Rankin, X Li
University of Kentucky, USA

09:25 1227 Solving complex problems in formulation processing by building a pragmatic multi-scale model
P S Chua[a], P Sharratt[a], A Kowalski[b]
[a]The University of Manchester, UK
[b]Unilever, UK

09:45 3229 Rapid scale-up of pharmaceutical processes- Finding the trees in the forest
S Lawton
AstraZeneca, UK

10:05 2695 Multi-scale modelling of bio-energy networks: a complex systems approach
R Kempener, J Beck, J Petrie
University of Sydney, Australia

T3-9 40 Tuesday 18/9 08:45 – 10:30
Evaluation-Analysis of Bio-Fuels
Aud-12

08 :45 1223 Development of multifunctional additives based on vegetal oils for high quality diesel and biodiesel fuels
J Hancsók[a], M Bubálik[b], A Beck[a]
[a]University of Pannonia, Hungary
[b]MOL Hungarian Oil & Gas Plc., Hungary

09:05 1036 Study on stability of ethanol/diesel fuel emulsion
G Nagy, G Marsi, J Hancsók
University of Pannonia, Hungary

09:25 3275 Evaluation of liquid bio-fuels using the analytic hierarchy process
M Papalexandrou, P A Pilavachi, A I Chatzimouratidis
Univ of Western Macedonia, Greece

09:45 3772 Biofuels: Myths and Reality (Keynote)
M N Karim, R Khare, S Peri
Texas Tech University, USA

T2-12b 41 Tuesday 18/9 08:45 – 10:30
Polymer Science & Engineering – II
Hall-A3

08 :45 2145 Kinetic Studies and Monte Carlo Simulations of radical Ter- and Tetrapolymerisations
M Drache, G Schmidt-Naake
Clausthal Univ of Technology, Germany

09:05 2955 Reinforcing of expanded polymer morphology using peroxy radical initiatorse
K Aleksieva[a], A Sassi[b], K Jerabek[a]
[a]Inst of Chem Process Fundamentals, CZ
[b]Instituto di Sci e Tech Molecolari, Italy

09:25 2513 Batch Processing of Poly (ethylene terephthalate)-Based Masterbatches: The Effect of Carrier Molecular Weight and Pigment Concentration
S S Hosseini[a], A Mehrabani-Zeinabad[b], A

Zadhoush[b]
[a]*National Univ of Singapore, Singapore*
[b]*Isfahan Univ of Technology, Iran*

09:45 2347 Control of Emulsion Polymerisation Processes: A Control-Relevant Model for Particle Size Distribution
M A Pinto[a]*, C D Immanuel*[a]*, J R Richards*[b]*, J P Congalidis*[b]
[a]*Imperial College-London, UK*
[b]*DuPont, USA*

10:05 3823 Effect of Processing Parameters and Composition on Mechanical Properties of Glass fiber Reinforced, EPR-g-MA Toughened Polyamide 6 Using Taguchi experimental design method
A Shojaei, M Fereydoon, A Ramazani
Sharif University, Iran

T4-2 42 Tuesday 18/9 08:45 – 10:30
Process Operation, Monitoring & Analysis
Room 20

08 :45 821 Start-up of Empty Cold Reactive Distillation Columns by means of Feedback Control Strategies: the Discontinuous Stage
S Sommer[a]*, J Raisch*[b]*, K Sundmacher*[b]
[a]*Otto-von-Guericke Universitaet, Germany*
[b]*Max Planck Institute, Germany*

09:05 2007 Evaluation of the potential of Periodic Reactor Operations Based on the Second Order Frequency Response Function
A Marković[a] *, A-S Morgenstern*[a]*, M Petkovskac*[b]
[a]*Max Planck Institute, Germany*
[b]*University of Belgrade, Serbia*

09:25 939 Dynamic Evidence of Multiplicity in a Reactive Distillation Column for Ultra-Low Sulfur Diesel Production
J C Cárdenas[a]*, T López-Arenas*[a]*, R Lobo-Oehmichen*[b]*, E S Pérez-Cisneros*[b]
[a]*UAM – Cuajimalpa, Mexico*
[b]*UAM – Iztapalapa, Mexico*

09:45 1891 Diagnosis-based Sensor Network, Design and Retrofitting
R Angelini, I Yelamos, L Puigjaner
UPC – Barcelona, Spain

10:05 66 On the control problem in fluid energy milling and air classification processes: approaches for experimenting and modeling particulate systems in an industrial scale plant.
L L Coutinho, M Embiruçu
Universidade Federal da Bahia, Brazil

T4-9b 43 Tuesday 18/9 08:45 – 10:30
Process Simulation & Optimization – II
Room 19

08 :45 3302 Performance of reduced distillation models in dynamic real-time optimization
L Würth[a]*, A Linhart*[b]*, H Preisig*[b]*, W Marquardt*[a]
[a]*RWTH Aachen, Germany*
[b]*Norwegian Univ of Sci & Tech, Norway*

09:05 3257 Periodic optimization of continuous microbial growth processes: Higher-order corrections to the Pi criterion
I Dermitzakis, C Kravarisa
University of Patras, Greece

09:25 560 Dynamic Monte Carlo simulation of batch free-radical linear and non-linear copolymerization systems.
D Meimaroglou, A Krallis, C Kiparissides
AUT & CPERI/CERTH, Greece

09:45 2255 Application of integrated process and control system model for simulation and improvement of an operating technology
B Balaskoa, S Nemetha, G Nagyb, J Abonyia
University of Pannonia, Hungary

10:05 3524 Dynamic optimization of modelica models
J Åkesson, Karl-Erik Årzén
Lund University, Sweden

S-6 44 Tuesday 18/9 11:00 – 12:30
The Future of European Chemical Engineering Education in a Globalized World (See page 16 for the program**)**
Aud-11

T1-6 45 Tuesday 18/9 11:00 – 12:30
Sustainable & Clean Technologies - III: Combustion & Emission
Hall-A1

11:00 1528 Biomass combustion in fluidized bed boilers: Potential problems and remedies
A A Khan[a]*, W de Jong*[a]*, P J Jansens*[a]*, H Spliethoff*[b]
[a]*Delft Univ of Technology, Netherlands*
[b]*Germany*

11:20 2163 Nature and combustion of the coke deposited over a Ni-HZSM-5 catalyst in the transformation of methanol/bio-oil mixtures into hydrocarbons
B Valle, A G Gayubo, A Atutxa, A Alonso, J Bilbao
Universidad del Pais Vasco, Spain

11:40 1806 Particle formation from gas cookers
A Yilmaz, P Glarborg, H Livbjerg
Technical University of Denmark, Denmark

12:00 568 Membrane contactors for post-combustion CO2 capture: Progress towards pilot plant operation
R Klaassen, P H M Feron
TNO Science & Industry, Netherlands

T2-1c 46 Tuesday 18/9 11:00 – 12:30
Thermodynamics: Developments with SAFT EOS
BV1

11:00 4052 New molecular models for hydrogen fluoride, refrigerants and their mixtures
M Pollock, C S Adjiman, A Galindo, G Jackson
Imperial Collge-London, UK

11:20 205 Development of a Group Contribution Simplified PC-SAFT Equation of State
A Tihic[a]*, G Kontogeorgis*[a]*, M Michelsen*[a]*, N Solms*[a]*, L Constantinou*[b]
[a]*Technical University of Denmark, Denmark*
[b]*Frederick Research Center, Cyprus*

11:40 3198 Modeling of aqueous electrolyte solutions with an equation of state
S Herzog[a]*, W Arlt*[a]*, J Gross*[b]
[a]*Universiat Erlangen-Nurnberg, USA*
[b]*Delft Univ of Technology, Netherlands*

12:00 3583 Thermodynamics And Phase Equilibria In Carbon Dioxide + Alkanol Systems From Statistical-thermodynamic Theory
K Aim
Institute of Chem Process Fundamental, CZ

T2-7a 47 Tuesday 18/9 11:00 – 12:30
Transport Phenomena in Porous/Granular Media – I
Room 18

11:00 3236 Steady-State and Dynamic Systems for Diffusion Parameters Determination: Advantages and Disadvantages
K Soukup, P Schneider, O Šolcová
Institut of Chem Process Fundamentals, CZ

11:20 2425 Brownian dynamics simulations of tracer diffusion and dynamics in polyelectrolyte

gels
H Zhou, S B Chen
National Univ of Singapore, Singapore

11:40 3164 Modeling of two-stage heat pump fluidized bed drying of protein
S V Goncharova-Alves[a], O Y Guzev[a], O Alves-Filho[b]
[a]Mendeleev Univ of Chem Tech, Russia
[b]New & Improved Drying Tech Co., Niorway

12:00 3345 Modelling of diffusion of molecules in biporous structure supports
R Mesnier, L Sorbier, M Quintard
IFP, France

T2-12a 48 Tuesday 18/9 11:00 – 12:30
Polymer Science & Engineering – I
Hall-A3

11:00 1620 A Study of SEC Chromatograms on the Basis of Polymer Structure Properties
Y Wang, O Hassager
Technical University of Denmark, Denmark

11:20 1691 Preparation and Characterization of Organic/Inorganic Polymer Nanocomposites
G Schmidt-Naake
Technical University of Clausthal, Germany

11:40 1787 Synthesis and kinetics study of UV curable epoxy acrylate resi
M Ebrahimi[a], P Kardar[b], S Bastani[b]
[a]Amirkabir Univ of Technology, Iran
[b]ICRC, Iran

12:00 2474 On the gas penetration in periodically constricted circular tubes filled with viscoelastic liquids
Y Dimakopoulos, J Tsamopoulos
University of Patras, Greece

T2-14a 49 Tuesday 18/9 11:00 – 12:30
Electrochemical Engineering – I
Room 16

11:00 767 Electrochemical oxidation of activated carbon fibre – an efficient way of enhancing toxic metal ion sorptive capacity
I D Harry, B Saha, I W Cumming
Loughborough University, UK

11:20 1967 Selective separation of Chromium (III) from electroplating effluents by ion-exchange processes
L Ferreira, S A Cavaco, M J Quina
University of Coimbra, Portugal

11:40 75 Removal of fluoride from photovoltaic wastewater by electrocoagulation and sludge characteristics
N Drouiche, M Hecini
Silicon Tech Development Unit, Algeria

12:00 365 Use of ion-exchange composites based on natural zeolites for cleaning of water solutions with purpose to create environmentally safe technologiese
V P Nesterenko
Belarus National Technical Univ, Belarus

T3-2 50 Tuesday 18/9 11:00 – 12:30
Controlled Release of the Active Ingredient: Mechanisms, Devices & Analysis
Room 17

11:00 3469 Microparticles formation of anti-inflammatory drug with bio-degradable polymer
L Fele Zilnik[a], A Krzan[a], D Freitag[b]
[a]National Institute of Chemistry, Slovenia
[b]Univ of Erlangen-Nuernberg, Germany

11:20 3656 Porous micro-cellular drug releasing foams as new implant material in post-surgical chemotherapy
L Y Lee, J L Zheng, C-H Wang
National Univ of Singapore, Singapore

11:40 2533 Analysis and modeling of radial water up-take in pure HPMC tablets
S. Chirico, G Lamberti, V Nunziata, G Titomanlio
University of Salerno, Italy

12:00 3354 Analysis and modeling of diclofenac sodium release kinetics from HPMC tablets
A A Barba, M d'Amore, G Lamberti
University of Salerno, Italy

T3-4a 51 Tuesday 18/9 11:00 – 12:30
CFD & Chemical Engineering- I
Room 19

11:00 2940 Multi-scale modelling of the anode and cathode compartments and the IIR unit within a MCFC
M Pfafferodt[a], P Heidebrecht[b], K Sundmacher[a,b]
[a]Otto-von-Guericke Univ, Germany
[b]Max Planck Institute, Germany

11:20 2185 Macroscopic and CFD modelling of droplet formation during cross–flow membrane emulsification
G De Luca[a], A Di Renzo[b], F P Di Maio[a], E Drioli[a,b]
[a]Institute of Membrane Technology, Italy
[b]University of Calabria, Italy

11:40 1102 High-fidelity CFD modeling of particle-to-fluid heat transfer in packed bed reactors
M Kuroki[a], S Ookawara[a], D Street[b], K Ogawa[a]
[a]Tokyo Institue of Technology, Japan
[b]Fluent Asia Pacific, Japan

12:00 712 CFD modelling of HVPE reactor for gallium nitride deposition
L Sytniewski, A Lapkin, W N Wang
University of Bath, UK

T3-6 52 Tuesday 18/9 11:00 – 12:30
Nanotechnology: New Developments
Aud-10

11:00 3859 Nanoscale simulations from the semiconductor industry to the life science
T H Rod, L D'Anterroches, K Stokbro
Atomistix A/S, Denmark

11:20 2659 Width variations of hydrodynamically focused streams in low to moderate Reynolds number
P M Domagalski[a], M Dziubinski[a], P Budzynski[a], M M Mielnik[b], L R Saetran[c]
[a]Technical University of Lodz, Poland
[b]Norwegian Univ of Sci & Tech, Norway
[c]SINTEF ICT, Norway

11:40 3581 A Dynamic model for in vivo glucose-insulin metabolism
V Hrafnkelsson, J B Jørgensen
Technical University of Denmark, Denmark

12:00 2655 Aerogels as carriers for immediate and controlled drug release
I Smirnova, S Suttiruengwong, M Alnaief, W Arlt
University of Erlangen-Nurnberg, Germany

T3-8 53 Tuesday 18/9 11:00 – 12:30
Novel Separation Techniques
Room 20

11:00 1820 Ultra purification of ionic liquids by melt crystallisation
A König, M Stepanski, A Kuszlik, P Kei l, C Weller
Sulzer Chemtech Ltd., Switzerland

11:20 2833 Development of a photocontrollable aqueous two-phase system for a novel separation method
J-I Edahiro, K Sumaru, T Takagi, T Shinbo, T Kanamori
AIST, Japan

11:40 1842 FricDiff: A novel and innovative separation process
B Breure, E A J F Peters, P J A M Kerkhof
Eindohen Univ of Technology, Netherlands

12:00 3869 Prediction and verification of the solubility of flavonoids in ionic liquids--A priori design of the green routes for efficient enzymatic synthesis of lipophilic flavonoid derivatives
Z Guo, B-M Lue, X Xu
Technical University of Denmark, Denmark

S7-K 54 Tuesday 18/9 11:00 – 12:30
EP & S Keynote Lectures
Aud-12

11:00 4090 Sustainability Integration In Chemical Process Engineering
A Irabien, R Aldaco, I F Olmo, A Garea
Universidad de Cantabria, Spain

11:45 1777 Sustainable Processes – The Challenge of the 21st Century for Chemical Engineering
M Narodoslawsky
Technical University of Graz, Austria

55 Tuesday 18/9 13:30 – 15:00
Poster Session
Exhibition Area
T2-2P: Chemical Reaction Engineering – Poster

52 Estimating the Parameters of the Arrhenius Equation through Genetic Algorithm Technique using Maleic Anhydride Synthesis as Study Case
E R Morais, G W C Oliveira, I R S Victorino, R M Filho
UNICAMP, Brazil

259 Efficient Synthesis, Structure Control and Homogeneous Catalytic Hydrogenation of Novel Arylidene Tetramic Acids.
C Karaiskos, M Tzika, P Paraskevopoulou, J Markopoulos, O–I Markopoulou
National Technical Univ of Athens, Greece

271 Synthesis of some 3,4-bis-(bipyridilium chloride)-maleimides and their chromic behavior
R Papadakis, Atsolomitis
National Technical Univ of Athens, Greece

406 Heterogeneous kinetics of the liquid phase synthesis and hydrolysis of isopropyl lactate
P Delgado[a], M T Sanz[a], S Beltrán[a], B Saha[b]
[a]University of Burgos, Spain
[b]Loughborough University, UK

1012 Full factorial experimental design for heterogeneously catalysed esterification reactions
A A I Citak[a], B D Deniz[a], C Izci[b]
[a]Eskisehir Osmangazi University, Turkey
[b]Anadolu University, Turkey

1138 Solid-state diffusion and crystal growth: two key steps
for gas–solid reactions
G Hu, K D Johansen, S Wedel
Technical University of Denmark, Denmark

1262 Kinetic Modelling of a Polyphasic Reactor by Predetermination of Phases Equilibria Involved
A J Bougrine, C Duriche, H Delalu
Université Claude Bernard Lyon1, France

1279 Identifying Chemical Reaction Network Models
S C Burnham, K Novakovic, M J Willis, A R Wright
Newcastle University, UK

1290 Reaction network determination using calibration free analytical data
K Novakovic, M J Willis, AR Wright
Newcastle University, UK

1424 Establishment of a neural network model for ethylene production from naphtha feedstock
M Ghadrdan, R Karimzadeh, R Bozorgmehri
Tarbiat Modares University, Iran

1653 Modeling of Oxidative Dehydrogenation of Propane for Propylene Production in a Membrane Reactor
M Fard Mostafavi, M R Omidkhah
Tarbiat Modares University, Iran

1838 Modeling and simulation of industrial adiabatic fixed-bed reactor for the catalytic reforming of methane to syngas
M T Mazandarani, H Ebrahim
Mazandaran University, Iran

2032 Modeling of rotating annular chromatographic reactor – application of statistical moments to indicate reasonable model simplifications
E Molga, M Ciach
Warsaw University of Technology, Poland

2090 Determination of the solubilities of mixed gases in mixed solvents using a novel HPNMR continuous flow system
A Torres, J A Iggo, J Satherley, G Eastham, D Gobby
University of Liverpool, UK

2616 Polymerization of Polypropylene Using Multi-Catalyst/Cocatalyst Systems and Investigation of Physical and Molecular Properties of Products
A Ramazani , A Dashti, S Rezvantalab
Sharif University of Technology, Iran

2679 Simulation and sensitivity analysis of a multitubular fixed bed catalytic reactor to produce Phthalic anhydride
O Gustavo, D Héctor
Univ Nacional de Colombia, Colombia

2731 Effect of pH and Hydrogen Peroxide on Ozonic Decomposition of NCW-1001
F Yamashita[a], N Shibata[b], T. Suzuki[a]
[a]Kanagawa Institute of Technology, Japan
[b]Nomura Micro Science Co Ltd., Japan

2749 Photocatalytic oxidation of toluene
F Jović, V Tomašić, S Zrnčević
University of Zagreb, Croatia

2831 Cure reaction and heat transfer in the cylindrical mould
V Kosar, Z Gomzi
University of Zagreb, Croatia

3012 Mechanistic and reaction engineering aspects of nitrile hydrogenation
P Schärringer, T E Müller, J A Lercher
TU-München, Germany

3372 Modelling and simulation of a direct synthesis of dimethyl ether (DME) in a tubular reactor with a hybrid catalyst bed
M Grzesik[a], A Ptaszek[b], J Skrzypek[a], P Ptaszek[b]
[a]Polish Academy of Science, Poland
[b]Agricultural Univ of Cracow, Poland

3398 Inhibitory study and trickle bed reactor modeling for joint reactions of hydrodesulfurization, hydrodenitrogenation and hydrodearomatization during the hydrotreating of vacuum gas oils
F Jimenez[a], V Kafarov[a], M Nunez[b], R M

Filho[c]
[a]*Industrial Univ of Santander, Colombia*
[b]*Colombian Petroleum Institute, Colombia*
[c]*UNICAMP, Brazil*

3405 A network of chemical reactions for modeling hidrocracking reactors
R M C F da Silva[a], *J L de Medeiros*[b], *O Q F Araújo*[b]
[a]*PETROBRAS, Brazil*
[b]*UFRJ, Brazil*

4069 The styrene photocatalytic degradation reaction
S R Taffarel, M A Lansarin, C C C Moro
UFRGS, Brazil

T2-5P: Multifase Flows – Poster

46 The residence time distribution of the gas phase in circulating fluidised beds
M Van de Velden[a], *J Baeyens*[b], *J Degrève*[a], *J P K Saville*[b]
[a]*University of Leuven, Belgium*
[b]*University of Birmingham, UK*

166 Instability study of an annular liquid sheet of polymer produced by atomization.
E P Herrero, E M M Valle, M A Galán
University of Salamanca, Spain

598 Experimental investigation of air-water two-phase flow in a 1mm x 1mm cross section channel
R Negera[a], *B Wittgens*[b], *L Sætran*[a], *P Skjetne*[b]
[a]*Norwegian Univ of Sci & Tech, Norway*
[b]*SINTEF, Norway*

718 Parameters characterising the pulsing flow for cocurrent flow of gas and foaming liquid in a pressurised trickle-bed reactor
D Janecki[a], *G Bartelmus*[b], *A Szczotka*[b]
[a]*University of Opole, Poland*
[b]*Polish Academy of Sciences, Poland*

823 Solid – liquid mass transfer in a fixed – bed reactor operating in induced pulsing flow regime
G Bartelmus[a], *A Gancarczyk*[b], *T Krótki*[a], *T Mokrosz*[b]
[a]*University of Opole, Poland*
[b]*Polish Academy of Sciences, Poland*

842 Hydrodynamic behaviour and gas-liquid mass transfer in a three-phase inverse turbulent bed reactor
D Hadjiev
University of Brittany South, France

1186 Vibration Field Effect Upon Gas-Liquid Mass Transfer
V Kholmer, L Grinis
Sami Shamoon College of Eng, Israel

1216 Power consumption for non-aerated Na-CMC solutions in multiple bioreactors agitated
L Broniarz-Press, S Woziwodzki, M Ochowiak
Poznan University of Technology, Poland

1881 Hydrodynamics and Gas-Liquid Mass Transfer in a Rectangular Bubble Column
A E M Cachaza, B E D Martín, C F J Montes, D M A Galán
University of Salamanca, Spain

2116 The effect of liquid viscosity on the void friction in a two-phase gas-liquid flow in narrow mini-channels
J Sowiński, M Dziubiński
Technical University of Lodz, Poland

2356 Hydrodynamic Correlations for the Design of Conical Spouted Beds with Open-Sided Draft-Tube
H Altzibar, G Lopez, J Bilbao, S Alvarez, M J San José, M Olazar
Universidad del Pais Vasco, Spain

3266 Mass transfer coefficient and gas hold-up in rectangular air–lift columns
M Dziubiński , P Budzyński, M Orczykowska
Technical University of Lodz, Poland

3300 Gas hold-up and bubble diameters in a gassed pulsation reactor
P Budzyński, M Dziubiński, P M Domagalski
Technical University of Lodz, Poland

3627 A visualisation technique for quantifying mixing time in stirred tank
E Brunazzi, S Pintus
University of Pisa, Italy

3750 Hydrodynamics of “jet” type outflow from process installations
H Fidos, M. Dziubiński, R. Krokos
Technical University of Lodz, Poland

T4-8P: Membranes and Membrane Science – Poster

814 Pervaporation of mixtures involved in the esterification of lactic acid with ethanol
P Delgado, M T Sanz, S Beltrán
University of Burgos, Spain

912 Treatment of Pharmaceutical Waste Water by Hybrid Separation Processes
E Csefalvay, K Koczka, P Mizsey
Budapest Univ of Technology & Economics, Hungary

1418 Mathematical modeling of transfer processes and chemical reactions in catalytic membrane reactors
E M Koltsova, S V Tsaplin, A A Mochalova, V V Vasilenko
Mendeleev Univ of Chem Tech, Russia

1580 Self-cleaning properties of RO membrane coated with TiO2 particles
S S Madaeni, N Ghaemi
Razi University, Iran

1852 Trade-off between hydrogen production and temperature hot spots in the design of a membrane reactor
G Chiappetta, G Clarizia, E Drioli
Institute on Membrane Technology, Italy

1884 Estimating the adsorption characteristics of a methylated amorphous silica membrane from permeation data
J Kuhn, P J Jansens, F Kapteijn, J Gross
Delft University of Technology, Netherlands

2095 Polyvinylamine/polysulfone composite membrane with excellent performance by facilitated transport for CO2 capture from exhaust gas of power plant
T J Kim, M B Hägg
Norwegian Univ of Sci & Tech, Norway

2283 Unsteady and steady-state gas permeation through active porous walls
R D Felice[a], *D Cazzola*[a], *M Garbero*[b], *P Ottonello*[b]
[a]*University of Genova, Italy*
[b]*Gruppo Mossi & Ghisolfi, Italy*

2351 Permeation of organic molecules in water and ethanol-water solution by reverse osmosis
J Labanda, J Llorens
University of Barcelona, Spain

2357 Membrane processes in the purification of electronic grade chemicals
A Garea, P Portilla, A Irabien
Universidad de Cantabria, Spain

2921 PEUF process with electrochemical regeneration for the recovery of copper
P Cañizares, A Pérez, J Llanos, M

González-Mohino
University of Castilla-la Mancha, Spain

2942 Influence of the nature of the ionic liquid on the selective transport of the substrates and products of transesterification reactions through supported liquid membranes based on ionic liquids
F J Hernández-Fernández, A P de los Ríos, F Tomás-Alonso, D Gómez, M Rubio, G Víllora
University of Murcia, Spain

2946 MFI-type zeolite dispersed in rubbery polymers: influence on surface and transport properties
G Clarizia, C Algieri, E Drioli
Institute on Membrane Technology, Italy

2976 Stability studies of supported liquid membranes based on ionic liquids using SEM/EDX techniques
A P de los Ríos, F J Hernández-Fernández, F Tomás-Alonso, J M Palacio, D Gómez, M Rubio, G Víllora
University of Murcia, Spain

3323 Gas separation simulation in hollow fiber membrane modules for multi component mixtures: Calculation of the performance and required area
T Mohammadi, M Pir, M Mahdyarfar
Iran Univ of Science & Technology, Iran

T2-10P: Distillation, Absorption & Extraction – Poster

123 Impact of texturation by DIC on solvent extraction of anthocyanins from Hibiscus sabdariffa
B B Amor, K Allaf
Université de la Rochelle, France

250 Measurements of Ternary Diffusion Coefficients of Aqueous Blended Alkanolamine systems: Diethanolamine + N-methyldiethanolamine + Water
P H Lin, C C Ko, M H Li
Chung Yuan Christian University, Taiwan

377 Investigation of application of extractive distillation method in chloroform manufacture
L S Gordeev, M B Glebov, E M Koltsova, N V Hitrov
Mendeleev Univ of Chem Tech, Russia

565 Mass transfer study using an electrochemical method
M A Cancela, R Maceiras, E Álvarez, X R Nóvoa
University of Vigo, Spain

570 Heat effect on mass transfer in N-Methyldiethanolamine aqueous solutions
M A Cancela, R Maceiras, E Álvarez
University of Vigo, Spain

1248 Hydrometallurgical Treatment of a Zinc Concentrate by Atmospheric Direct Leach Process
S M C Santos, M R C Ismael, M J N Correiaa, M T A Reis, A Deep, J M R Carvalho
Instituto Superior Tecnico, Portugal

1303 Copper recovery from ammoniacal media using hollow fibre contactors
M L F Gameiro, M R C Ismael, M T A Reis, J M R Carvalho
Instituto Superior Tecnico, Portugal

1458 Thermodynamic topological analysis at infinite and finite conditions for reactive mixtures of acetates
C A Cardona[a], F A Perdomo[a], F E Lopez[b]
[a]National Univ of Colombia; Colombia
[b]University of Alicante, Spain

1912 Regimes of extractive distillation in ethanol production
N Vyazmina, D Baranov, A Vyazmin
Moscow State Univ of Env Eng, Russia

2011 Design and Construction of a Novel Oldershaw-type Distillation Column for Measurement and Scale-up of Tray Efficiencies
M Rahmati, M M Shafaghieh, H Amouei
University of Tehran, Iran

2118 Supercritical fluid extraction of bioactive compounds from sunflower leaves: comparison of analytical and pilot-scale extraction
L Casas, C Mantell, M Rodríguez, A Torres, F A Macías, E J M Ossa
University of Cadiz, Spain

2213 Sorption Dynamics of Rare Metals into a Matrix-Type Microcapsule Containing an Organophosphorus Extractant
K Kondo[a], M Matsumoto[a], E Kamio[b]
[a]Doshisha University, Japan
[b]Okayama University, Japan

3629 Characterizing a Brazilian Petroleum Residue by Molecular Distillation Process
A Winter[a], B C Batistella[a], M R W Maciel[a], R Filho[a], L C Medina[b]
[a]UNICAMP, Brazil
[b]PETROBRAS, Brazil

3680 Carbon dioxide absorption from flue gases using Sodium Hydroxide as liquid solvent
F Yazdanbakhsh, A Soltani, H Hashemipour
Kerman University, Iran

4025 Numerical simulation to determine the mass transfer Coefficient in gas - liquid phase in an absorbed column
B Sohbi
Libyan Petroleum Institute, Libya

T2-11P: Filtration – Poster

593 A vibrating membrane bioreactor operated at supra- and sub-critical flux: Influence of EPS from yeast cells
S P Beier, G Jonsson
Technical University of Denmark, Denmark

735 Assessment of must concentration by nanofiltration membranes
I Catarino, V Geraldes, M N Pinho
Instituto Superior Tecnico, Portugal

897 Modified polyethersulfone membranes for micellar enhanced ultrafiltration of chromium
G Poźniak, R Poźniak
Wroclaw University of Technology, Poland

928 Effect of physicochemical conditions on crossflow microfiltration of mineral dispersions using ceramic membranes
P Mikulášek, P Velikovská, J Horčičková
University of Pardubice, Czech Republic

1032 The role of ultrafiltration on sheep milk rennet clotting properties
I M M L C Gomes[a], A P L Martins[b], E Duarte[b], M N Pinho[a]
[a]Instituto Superior Tecnico, Portugal
[b]Instituto Superior de Agronomia, Portugal

1103 Particle Fouling in Air-Sparged Cross-Flow Microfiltration
K-J Hwang, Y J Wu
Tamkang University, Taiwan

1704 Ultrafiltration of hydrolysis products from xylan Eucalyptus wood
M J G Muñoz, H Domínguez, J C Parajó
University of Vigo, Spain

2141 Demonstration of ”creep” during filtration

K Keiding, M Hinge, M L Christensen
Aalborg University, Denmark

2147 Cake creep during filtration of flocculated manure
M L Christensen, K Keiding
Aalborg University, Denmark

T2-12P: Polymer Science & Engineering – Poster

1946 Thermal behavior of whey protein films laminated with corn zein protein
F Jabbari[a], R Oromiehie[b], B Ghanbarzadeh[c], S N Khorasani[a]
[a]Isfahan University of technology, Iran
[b]Iran Polymer & Petrochem Institute, Iran
[c]University of Tabriz, Iran

2593 Study on effective parameters on phase separation in segmented polyurethanes
M Amrollahi, G M M Sadeghi
Amirkabir University, Iran

2688 The Curing Reactions of the Epoxy/Intercalated Clay Resin Systems
S G Hong, C W Kuo
Yuan-Ze University, Taiwan

3451 Kinetic Study of Methyl Methacrylate/Lauryl Methacrylate Inhibited Free Radical Copolymerization by Differential Scanning Calorimetry
A Habibi, J D Wilde
Université Catholique de Louvain, Belgium

T3-P: Theme-3 Poster Session

Nanotechnology & Nanomanufacturing (T3-P1)

108 DNA nanobiosensor based on silicon chip
A M Karbassian, B M Vosuoghi
Sharif University of Technology, Iran

291 Preparation of nanoparticles using a membrane contactor: influence of process parameters
C Charcosset, H Fessi
UCB-Lyon1, France

1448 Application of magnetic nanostructures in biotechnological processes: Biodiesel production using lipase immobilized on magnetic carriers
K J Dussán, O H Giraldo, C A Cardona
National Univ of Colombia, Colombia

2691 Assembly and electric double-layer capacitive behavior of three-dimensional carbon nanocluster electrodes
C-T Hsieh, K-S Lin
Yuan-Ze University, Taiwan

2698 Attachment of nickel nanoparticles on carbon nanotube electrodes for enhancement of electrochemical capacitance
C-T Hsieh, K-S Lin
Yuan-Ze University, Taiwan

2781 Micro- and submicrocrystalline structure of cooper: processing and low temperature mehanical behaviour
V V Pustovalov[a], Y Estrin[c], L S Fomenko[a], V S Fomenko[a], N V Isaev[a], M Janecek[d], S V Lubenets[a], S V Malyhin[b], A T Pugachov[b], E N Reshetnyak[b], S E Shumilin[a], R Hellmig[c]
[a]NASU, Ukraine
[b]National Technological University, Ukraine
[c]Technische Univ Clauthal, Germany
[d]Charles University, Czech Republic

3364 Stabilization of enzymes by surrounding them with thin, porous polymer layer
I Hegedüs, E Nagy
University of Pannonia, Hungary

3649 Environmentally Friendly Pathways for Synthesis of Titanium Dioxide Nano-particles
S Sunol, H Li, A Sunol
University of South Florida, USA

Controlled Release of the Active Ingredient: Mechanisms, Devices & Analysis (T3-P2)

693 Solid lipid nanoparticles for controlled release prepared using a membrane contactor
C Charcosset, A A El-Harati, H Fessi
UCB-Lyon1, France

2111 Production of particle powder for inhalation process and controlled release of drugs
K Kula, T Ciach, K W Szewczyk
Warsaw University of Technology, Poland

2419 Protein-based drugs encapsulation in biodegradable microparticles by co-axial electrospray
J Xie, W J Ng, L Y Lee, C-H Wang
National Univ of Singapore, Singapore

2535 Modeling the pharmacokinetics of Extended Release pharmaceutical systems
G Lamberti, M Di Muria, G Titomanlio
University of Salerno, Italy

3197 Modified sulfur coating of urea with polymers addition in spouted bed
M Nasrollahzadeh, N Ashrafizadeh
Iran Univ of Science & Technology, Iran

Analysis of Energy-Environmental Issues (T3-P3)

996 A kinetic study of gaseous potassium capture by coal minerals in a high temperature fixed bed reactor
Y Zheng, P A Jensen, A D Jensen
Technical University of Denmark, Denmark

1219 Hidden issues when installing heat pumps into buildings with existing heating systems
C-G Berg, N-C Berg
Åbo Akademi University, Finland

1951 Evaluation of Gum Formation in Automotive Gasoline Under the Action of Multiple Metals (Fe, Ni and Cu) Using Factorial Planning
L S de Carvalhoa, L S G Teixeiraa, R V Lopeza, A S Novaesa, E G dos Santosa, P R B Guimarãesa
Univ Salvador – UNIFACS, Brazil

2133 Application of carbon molecular sieve membranes in a mixed hydrogen-natural gas distribution network
J A Lie, D Grainger, M-B Hägg
Norwegian Univ of Science & Tech, Norway

CFD & Multiscale Modelling in Chemical Engineering (T3-4P)

494 Dynamic neural network model and parameter estimator for hydrochloric acid recovery process
P Thitiyasooka, P Kittisupakorna, W Daosuda
Chulalongkorn University, Thailand

519 Characterization of flow pattern in a rotor stator mixer
A Pacek[a], M Baker[b], A T Utomoa[a]
[a]University of Birmingham, UK
[b]Unilever, UK

662 Effect of the yield stress on the characteristics of the laminar flow of a Bingham fluid in a circular pipe maintained at uniform temperature
A K Boutra, N Labsi, Y K Benkahla
Université des Sciences et de la Technologie, Algeria

855 Simulation of entrained air separation from paper machine circulation water using CFD
A Laari[a], A Haapala[b], T Stoor[b], I Turunen[a]
[a]Lappeenranta Univ of Technology, Finland
[b]University of Oulu, Finland

862 Prediction of bubble size and interfacial area in bubble column CFD simulations through solution of population balance equations
M R Kamali[a], A Laari[a], Z Sha[b], I Turunen[a]
[a]Lappeenranta Univ of Technology, Finland
[b]Tianjin University of Science & Tech, China

1158 Enhancing the RIM process with pulsation technology: CFD study
E Erkoça, R J Santosa, M M Dias, J C B Lopesa
University of Porto, Portugal

3214 Simulation of a bubble column reactor using CFD approach.
Application: ferrous biooxidation
S M Mousavi[a], A Jafari[b], S Yaghmaei[a], M Vossoughi[a], I Turunen[b]
[a]Sharif University of Technology, Finland
[b]Lappeenranta Univ of Technology, Finland

1613 Computer-Aided multiscale product-centric process modelling
R Morales-Rodríguez, R Gani
Technical University of Denmark, Denmark

2045 Seeking the optimum solution for the design of a typical PHE
A G Kanaris, S V Paras
Aristotle Univ of Technology, Greece

2459 CFD Simulation of Methane Steam Reforming Furnace
M Molaei, M T Sadeghi
Iran Univ of Science & Technology, Iran

3104 Model of the partial oxidation of methane to methanol in a gas-solid-solid reactor
C G Dallos, V Kafarov
Industrial Univ of Santander, Colombia

3565 CFD simulation of heat transfer in ferrofluids
A Jafari[a], T Tynjälä[a], S M Mousavi[b], P Sarkomaa[a]
[a]Lappeenranta Univ of Technology, Finland
[b]Sharif Univ of Technology, Iran

T4-1P: Process Synthesis & Design - Poster

149 The system analysis of multiassortmental manufacturings of phosphorus – containing products based on CALS – technologies
A Bessarabov[a], L Puigjaner[b], E Koltsova[c], T Ogorodnikova[a]
[a]IREA, Russia
[b]UPC-Barcelona, Spain
[c]Mendeleev Univ of Chem Tech, Russia

256 About new type of multiplicity of steady states in the recycle system: Reactor - Separating unit
S Duev
Kazan State Technological Univ, Russia

686 Practical application of the methodology of integrated design for the synthesis of continuous flexible automated turbulent reactor units in the production of azo dyes and pigments
G Ostrovsky[a], D Dvoretsky[b], S Dvoretsky[b]
[a]Karpov Institute of Physical Chemistry, Russia
[b]Tambov State Technical Univ, Russia

1460 Use of glycerol from biodiesel production: Conversion to added value products
C Cardona, J. Posada, M Montoya
National Univ of Colombia, Colombia

1651 Mineral process design under uncertainly: A case study approach
L Cisternas, N Jamett, E Gálvez
Universidad de Antofagasta, Chile

2186 Norm norm-based approaches for Integrated Design of WWTP
M Francisco, P Vega
Universidad de Salamanca, Spain

T4-4P: Advances in Computational & Numerical Methods – Poster

145 Modeling and Optimization of Crude Oil Fouling Based on Artificial Neural Networks and Genetic Algorithms
J Aminian, S Shahhosseini, M Azarmi, M Molaei, A Ghaemi
Iran Univ of Science & Technology, Iran

305 Infotherm: A Thermophysical XML-Database of Mixtures and Pure Compounds
J Homann
FIZ CHEMIE Berlin GmbH, Germany

350 Numerical simulation for the heat transfer of a helical double-pipe vertical evaporator
D Colorado-Garrido, J A Hernadez, D Juárez-Romero, O García-Valladares, J Siqueiros
UAEM, Mexico

3035 Dynamic Optimization of a Batch Reactor using the capabilities of an MINLP process synthesizer MIPSYN
M Ropotar, Z Kravanja
University of Maribor, Slovenia

3528 A Family of ESDIRK Solvers for DAE Systems
J B Jørgensen, M R Kristensen, P G Thomsen
Technical University of Denmark, Denmark

3532 Enhanced performance of ant colony algorithm compared with other metaheuristics in batch scheduling
E Capón, A Espuña, L Puigjaner
UPC-Barcelona, Spain

3691 Application of Genetic Algorithm in Kinetic Modeling of Fischer-Tropsch Synthesis
M Masoori[a], R B Boozarjomehry[a], M J Sarnavi[b]
[a]Sharif University of Technology, Iran
[b]Ministry of Education, Iran

T4-8P: Process Control – Poster

363 Design of PID Controller Cascaded with Filter for First Order Time Delay Process
M Shamsuzzoha, M Lee
Yeungnam University, South Korea

990 Robust stabilization of an exothermic CSTR
M Bakosova, D Puna, J Zavacka
Slovak Univ of Technology, Slovakia

1044 A Novel Mixed Product Run-to-run Control Algorithm – Dynamic Ancova Approach
M-D Ma, C-C Chang, D S-H Wong, S-S Jang
National Tsing-Hua University, Taiwan

1407 Fuzzy Model-based Predictive Control of a Chemical Reactor
A Vasičkaninová, M Bakošová
Slovak Univ of Technology, Slovakia

1715 PD and PID Fuzzy Logic Controllers. Application to Neutralization Processes
M C Palancar, L Martín, J M Aragón, J Villa
Universidad Complutense de Madrid, Spain

2201 Nonlinear model predictive control strategies applied to a fed-batch sugar crystallizer
L S Dediós[a], P Georgieva[b], S Feyo de Azevedo[a]

[a]*University of Porto, Portugal*
[b]*University of Aveiro, Portugal*

2234 Development of Soft Sensors for Debutanizer Product Quality Estimation and Control
I Jerbic[a], N Bol[b], H Pavelic[a]
[a]*Sisak Oil Refinery, Croatia*
[b]*University of Zagreb, Croatia*

2524 Neural Network Modeling and Control of an Etherification Hybrid Reactor
P Kittisupakorn, P Thitiyasook, K Konakom
Chulalongkorn University, Thailand

2838 Control and Optimization of a Fluid Catalytic Cracking Process: An Industrial Case
J L Fernandes[a], C I C Pinheiro[a], N Oliveira[b], J Inverno[b], F Ramôa Ribeiro[a]
[a]*Instituto Superior Technico, Portugal*
[b]*Universidade de Coimbra, Portugal*

2877 Data Driven Tuning of Lower Level Controllers for Disturbance Rejections
J K Huusom, N K Poulsen, S B Jørgensen
Technical University of Denmark, Denmark

3520 A Critical Discussion of the Continuous-Discrete Extended Kalman Filter
J B Jørgensen
Technical University of Denmark, Denmark

3560 Modeling and Control Solutions for Riser Slugging in Offshore Oil Fields
O Q F Araújo[a], J Luiz de Medeiros[a], G C Nunes[b]
[a]*UFRJ, Brazil*
[b]*PETROBRAS, Brazil*

S-6 56 Tuesday 17/9 15:00 – 17:30
The Future of European Chemical Engineering Education in a Globalized World (See page 16 for the program**)**
Aud-11

T1-2 57 Tuesday 17/9 15:00 – 17:00
Green Organic Synthesis Routes
Room 16

15:00 3087 SILP aatalysis – An innovative concept for benign continuous, solvent-free processes using Ionic liquids
A Riisager[a], R Fehrmann[a], M Haumann[b], P Wasserscheid[b]
[a]*Technical University of Denmark, Denmark*
[b]*Universität Erlangen-Nürnberg, Germany*

15:20 1822 Highly selective, high-speed hydrolysis-free O-acylation induced with subcritical water micro-reaction system in the absence of catalyst
M Sato, K Matsushima, H Kawanami, T Yokoyama, Y Ikushima
AIST, Japan

15:40 1694 Free radical polymerization in ionic liquids - Explanation of the solvent influence
G Schmidt-Naake
Technical Univ of Clausthal, Germany

16:00 3776 Computer-aided solvent selection for increased reaction rate
M Folic[a], C S Adjiman[b], E N Pistikopoulos[b]
[a]*Technical University of Denmark, Denmark*
[b]*Imperial College London, UK*

16:20 1130 Investigation of response surface optimization of benzoin synthesis
N Yildiz
Ankara University, Turkey

16:40 743 Utilization of Lignin for the production of chemicals
T Voitl, P R von Rohr
ETH Zurich, Switzerland

T1-3 58 Tuesday 17/9 15:00 – 17:00
Environmental Engineering & Management
Hall-A1

15:00 3356 First year operation experience with a 1 t/h CO2 absorption pilot plant at Esbjerg coal-fired power plant
J N Knudsen, J N Jensen, P J Vilhelmsen
DONG Energy Generation, Denmark

15:20 746 Influence of temperature in the continuous pyrolysis of waste tyres in a conical spouted bed reactor
G Lopez, G Elordi, M Arabiourrutia, R Aguado, M Olazar, H Altzibar
University del Pais Vasco, Spain

15:40 312 Improving the heat transfer properties of waste activated sludge by advanced oxidation processes
R Dewil[a], L Appels[b], J Baeyens[c]
[a]*University of Antwerp, Belgium*
[b]*Catholic University of Leuven, Belgium*
[c]*University of Birmingham, UK*

16:00 1752 Possibility of the Use of Hollow Fiber Membrane Contactors for Phenol Biodegradation in Saline Solutions
Ruey-Shin Juang
Yuan-Ze University, Taiwan

16:20 1696 Ecological Studies and Dynamic Parameter Estimation for Eutrophication Models
V Estrada, E. Parodi, M S Diaz
PLAPIQUI, UNS-CONICET, Argentina

T2-1e 59 Tuesday 18/9 15:00 – 17:00
Thermodynamics: General
BV1

15:00 280 Don't gamble with physical properties of polymers
A A Kiss, A Belkou, A C Dimian, P Iedema
University of Amsterdam, Netherlands

15:20 3199 Solubility of CO2 in Solutions of Hyperbranched Polymers. Search for Green Process Solvents
M K Kozłowska, C S Schacht, B Jürgens, J Gross, T W Loos, P J Jansens
Delft University of Technology, Netherlands

15:40 224 Heat capacity of liquids: database of recommended values and estimation by a group contribution method
Z Kolská[a], M Zábranský[b], V Růžička[b], J Kukal[b]
[a]*J E Purkyne University, Czech Republic*
[b]*Institute of Chem Tech, Czech Republic*

16:00 3699 Towards Fast Measurement of Multicomponent Diffusion Coefficients in Ionic Liquids
E Kriesten, M Oertker, A Bardow, H J Koß, W Marquardt
RWTH Aachen, Germany

16:20 929 Determination of Critical Properties for Reactive Mixtures: Hydrodesulfurization of 4, 6-Dimethyldibenzothiophene
M Alvarado-Morales, E S Pérez-Cisneros, T Viveros- García
UAM – Iztapalapa, Mexico

16:40 3647 Automatic generation of Global Phase Diagram from Equation of State
A K S Patel, B A K Sunol
University of Southern Florida, USA

T2-2c 60 Tuesday 18/9 15:00 – 17:00
Chemical Reaction Engineering: Practical Applications
Room 20

15:00 1127 Catalytic Synthesis of Hydrogen Peroxide in a Capillary Microreactor
S Maehara, M Taneda, K Kusakabe
Fukuoka Women's University, Japan

15:20 2316 Direct Synthesis of Hydrogen Peroxide in a Catalytic Membrane Contactor
A Pashkova , K Svajda , R Dittmeyer
Karl-Winnacker Institute, Germany

15:40 2342 High purity hydrogen production in a Pd-Ag membrane reactor
G Barbieri[a], G Tricoli[b], A Brunetti[b], E Drioli[a,b]
[a]Institute on Membrane Technology, Italy
[b]University of Calabria, Italy

16:00 2208 Using Online Calorimetry to Ensure Process Safety: Scaling Up Catalytic Epoxidation of Alkenes
J Bu, C W Quah, K J Carpenter
ICES, Singapore

16:20 3322 Role of the Precipitation Device on the Properties of Al2O3-TiO2 Mixed Oxides
G Mouret[a], K Mozet[a], H Muhr[a], E Plasari[a], M Martin[b]
[a]CNRS, France
[b]IFP, France

16:40 2334 Mathematical Modeling of Two Separate Phases Enzymatic Membrane Reactor
F Scura[a], G Barbieri[b], L Giorno[b], J Zhang[b], E Drioli[a,b]
[a]University of Calabria, Italy
[b]Institute on Membrane Technology, Italy

T2-7b 61 Tuesday 17/9 15:00 – 17:00
Transport Phenomena in Porous/Granular Media – II
Room 18

15:00 848 Transient natural convection in stored granular media
J G A Acevedo, E Tsotsas
Otto-von-Guericke University, Germany

15:20 3159 Production of cylindrical carbon xerogel monoliths: effect of sample diameter on drying-induced cracks
A Léonard[a], M Crine[a], W Jomaa[b]
[a]University Liege, Belgium
[b]Université Bordeaux, France

15:40 2293 Prediction Of Shelf-life Of Beverages Stored In Pet Bottles With Passive And Active Walls
R Di Felice[a], D Cazzola[a], S Cobror[b], L Oriani[b]
[a]University of Genova, Italy
[b]Gruppo Mossi & Ghisolfi, Italy

16:00 2179 Effective diffusivities of gases in a reconstructed porous body
P Čapek[a], V Hejtmánek[b], L Brabec[b], A Zikánová[b], M Kočiřík[b]
[a]Institute of Chem Tech, Czech Republic
[b]Academy of Sciences, Czech Republic

16:20 1627 Effect of liquid flow rate and bed void fraction on the hydrodynamics and performance of a trickle-bed bioreactor
M Cruz-Díaz[a], S Revah[b], R Lobo-Oehmichen[b]
[a]Tecnologico de Estudios Superiores de Ecatepec, Mexico
[b]UAM – Iztapalapa, Mexico

16:40 2199 Influence of the interfacial reaction rate on macroscopic systems
F J Valdes-Parada[a], M Sales-Cruz[b], J Alvarez-Ramirez[a], J A Ochoa-Tapia[a]
[a]UAM-Iztapalapa, Mexico
[b]UAM-Cuajimalpa, Mexico

T2-8a 62 Tuesday 17/9 15:00 – 17:00
Membranes and Membrane Science – I
Aud-10

15:00 2001 Natural gas sweetening by the use of a facilitated blend membrane
M B Hägg, L Deng, T J Kim
Norwegian Univ of Science & Tech, Norway

15:20 177 A membrane based process for the upgrading of biogas to substituted natural gas (SNG) and recovery of carbondioxide for industrial use
B Norddahl , J du Preez
Syddansk Universitet, Denmark

15:40 2380 Mass transport with varying diffusion- and solubility coefficient through a catalytic membrane layer
E Nagy
University of Pannonia Hungary

16:00 1882 Determining the dehydration performance of a hydrophobic DDR zeolite membrane
J Kuhn[a], K Yajima[b], T Tomita[b], J Gross[a], F Kapteijn[a], P J Jansens[a]
[a]Delft University of Technology, Netherlands
[b]NGK Insulators Ltd., Japan

16:20 3539 Mathematical modelling of multicomponent transport in silicalite-1-α-alumina membrane
V Fíla[a], B Bernauer[a], M Kočiřík[b], P Hrabánek[b], V Navara[a], A Zikánová[b]
[a]Institute for Chem Tech, Czech Republic
[b]Academy of Sciences, Czech Republic

16:40 1591 A CAPE tool to simulate the pervaporation process for recovering an aroma contributor of orange juice
W A Araujo, M E T Alvarez, M R W Maciel
UNICAMP, Brazil

T3-4b 63 Tuesday 18/9 15:00 – 17:00
CFD & Chemical Engineering- II
Room 19

15:00 3483 Steady-state riser simulations using filtered gas-solid flow models
J De Wilde, A Habibi
Université Catholique de Louvain, Belgium

15:20 864 Simulation of drop formation in a single hole in solvent extraction using VOF method
A Soleymani, A Laari, I Turunen
Lappeenranta Univ of Technology, Finland

15:40 238 Numerical and experimental investigation of flow patterns in scraped surface heat exchangers
M Yataghene[a], F Fayolle[a], J Legrand[b]
[a]ENITIAA, France
[b]University of Nantes, France

16:00 1132 CFD Modeling of Solid-Liquid Suspension Flow in a Horizontal Pipe
G Yang[a], Y Enqvist[b], H Qu[c], M Louhi-Kultanen[c], J Kallas[c], J Wang[a]
[a]Tsinghua University, China
[b]VTT Processes, Finland
[c]Lappeenranta Univ of Technology, Finland

16:20 1863 Simulation of laminar reactive mixing in micro-flows
A Vikhansky
Queen Mary – Univ of London, UK

16:40 858 A study of hydrodynamics in cylindrical bubble column by CFD
M R Kamali, A Laari, I Turunen
Lappeenranta Univ of Technology, Finland

T4-1b 64 Tuesday 18/9 15:00 – 17:00
Process Synthesis & Design – II
Hall-A2

15:00 1584 Multicriteria optimization under uncertainty – considering insufficient process data at the operation stage
I Datskov[a], L E K Achenie[b], G Ostrovsky[c]
[a]University of Connecticut, USA
[b]Virginia Polytechnique Institute, USA

[c]*Karpov Institute of Physical Chemistry, Russia*

15:20 3393 Uncertainty analysis during the multi-criteria evaluation of wastewater treatment plant design alternatives
X Flores[a], J Comas[a], M Poch[a], I Rodríguez-Roda[a], R Bañares-Alcantára[b], K V Gernaey[c]
[a]*University of Girona, Spain*
[b]*University of Oxford, UK*
[c]*Technical University of Denmark, Denmark*

15:40 774 Simultaneous optimization of different strategies for co-production of sugar and ethanol
D Krajnc, P Glavič
University of Maribor, Slovenia

16:00 1977 Decision suport system for unsteady-state reactors design using case-based reasoning approach
B-J C Cristian[a], Y Avramenko[b], A Kraslawski[b], P S Agachi[a]
[a]*Babes-Bolyai University, Romania*
[b]*Lappeenranta Univ of Technology, Finland*

16:20 1149 Towards synthesis of an optimal thermal cracking reactor
M W M van Goethem[a], S Barendregt[b], J Grievink[a], J A Moulijn[a], P J T Verheijen[b]
[a]*Delft Univesity of Technology, Neterlands*
[b]*Technip Benelux B.V., Netherlands*

16:40 1245 Optimisation-based design of reactive distillation columns
S Barkmann[a], G Sand[b], S Engell[a]
[a]*Universität Dortmund, Germany*
[b]*ABB, Germany*

T4-8 65 Tuesday 18/9 15:00 – 17:00
Process Control
Room 17

15:00 1052 Control structure selection of a deethanizer column with partial condenser
E S Hori, S Skogestad
Norwegian Univ of Sci & Tech, Norway

15:20 1679 A multi-parametric programming approach for dynamic programming and robust control
N Faísca[a], O Exler[b], J Banga[c], E N Pistikopoulos[a]
[a]*Imperial College London, UK*
[b]*University of Bayreuth, Germany*
[c]*IIM-CSIC, Spain*

15:40 2349 Inferential control of a chaotic autocatalytic reaction in a continuous stirred tank reactor
A Mukherjee, D P Searson, M J Willis, A R Wright
Newcastle University, UK

16:00 3061 Design and Performance Evaluation of an Explicit Parametric Controller for a Solid Oxide Fuel Cell (SOFC) System: A Comparative Study
D I Gerogiorgis[a], K I Kouramas[a], N Bozinis[b], E N Pistikopoulos[a]
[a]*Imperial College London, UK*
[b]*ParOS Ltd., UK*

16:20 3281 Estimation of noise covariances and identification of disturbance structure using the autocovariance least-squares method
B M Åkesson, J B Jørgensen, N K Poulsen, S B Jørgensen
Technical University of Denmark, Denmark

16:40 2174 Norm based approaches for Automatic tuning of Model based Predictive Control
P Vega, M Francisco, E Sanz
University of Salamanca, Spain

S-2 66 Tuesday 18/9 15:00 – 17:00
Invited Session on Energy Issues
Aud-12

15:00 4180 An Oil and Gas Company's Perspective on Energy Supply and CO2 Capture & Storage
G de Koeijer
Statoil A/S, Norway

15:30 2653 Mimizing the energy demand of CO2-capture in conventional power stations
W Arlt, J Rolker
Universität Erlangen-Nürnberg, Germany

16:00 2748 Multi criteria decision making within energy networks for electricity production in emerging markets
J Petrie[a], R Kempener[a], J Beck[a], B Cohen[b], L Basson[c]
[a]*University of Sydney, Australia*
[b]*University of Cape Town, South Africa*
[c]*University of Surrey, UK*

16:30 3109 A technological comparison between PEFC and SOFC systems for residential CHP applications
B P Ladewig, F Lapicque
CNRS-ENSIC, France

T4-4 67 Tuesday 18/9 15:00 – 17:00
Advances in Computational & Numerical Methods
Hall-A3

15:00 4142 DEM – Discrete Element Method, modelling active pharmaceutical ingredient powder behaviour
J Fiedler, D J Taylor, F X Ricard

15:20 2053 Solution of nonlinear reaction-diffusion systems based on Green's functions
F J Valdes-Parada, M Sales-Cruz, J Alvarez-Ramirez,
J A Ochoa-Tapia

15:40 3375 The function of functional modelling in (bio-) chemical engineering
S B Jørgensen, N Jensen, M Lind

16:00 3537 Dynamic optimization based on adjoint sensitivity analysis
J B Jørgensen, M R Kristensen, P G Thomsen, K Johansen

16:20 1930 Constrained Gibbs energy methods in process modeling
P Koukkari, R Pajarre, K Penttilä

16:40 1853 A computational approach to solvent selection
M Peters, A C Spiess, W Leitner, L Greinera

T1-K2 68 Tuesday 18/9 17:05 – 17:45
Theme-1 Keynote Lecture
Hall-A1

4157 Harnessing methane emissions from coal mining
Krzysztof Warmuzinski
Polish Academy of Sciences, Poland

T2-K2 69 Tuesday 18/9 17:05 – 17:45
Theme-2 Keynote Lecture
Rooms 20

4086 New solid foam reactor packings for multiphase applications
J C Schouten, C P Stemmet, P W A M Wenmakers, J van der Schaaf, B F M Kuster
Eindhoven Univ of Technology, Netherlands

T2-K3 70 Tuesday 18/9 17:05 – 17:45
Theme-2 Keynote Lecture
Aud-10

4091 Progresses on Seawater Desalination and Wastewater Treatment in the Logic of Process Intensification Strategy
E Drioli, F. Macedonio

Institute on Membrane Technology, Italy

T3-K2 71 Tuesday 18/9 17:05 – 17:45
Theme-3 Keynote Lecture
Aud-12

4175 Expediting Product and Process Development with Workflow
Ka M Ng
Hong Kong Univ of Science & Tech

T4-K1 72 Tuesday 18/9 15:00 – 17:00
Theme-4 Keynote Lecture
Hall-A3

225 Process Performance Monitoring – Towards Model Based Approaches
Julian Morris
Newcastle University, UK

T0-3 73 Wednesday 19/9 08:45 – 09:35
Plenary Lecture
Auditorium 10-12

4177 Chemical Engineering and the impact on white biotechnology
Mr Per Falholt
Novozymes A/S, Denmark

T0-4 74 Wednesday 19/9 09:40 – 10:30
Plenary lecture (Danckwerts Lecture 2007)
Auditorium 10-12

4179 Chemical Processing by Self Assembly : Lets take it seriously
Prof Matthew Tirrell
University of California-Santa Barbara, USA

S4-A 75 Wednesday 19/9 09:45 – 10:30
EPIC-1 keynote Lecture 1
Room 20

4155 Chemical and biological microsystems for discovery and scaling to production
K V Jensen
University of Massachusetts, USA

S5-A 76 Wednesday 19/9 09:45 – 10:00
Innovations in Food Technology (LMC Congress)
Hall-A3

Openning Address
Bent Claudi Lassen
Chairman, LMC Bord, Denmark

S5-B 77 Wednesday 19/9 10:00 – 10:30
Keynote Lecture (LMC Congress/Food Symposium)
Hall-A3

Innovations in Food Technology from 1970 to 2030
Thomas Olsson
SIK, Sweden

T1-4a 78 Wednesday 19/9 11:00 – 12:30
Sustainable & Clean Technologies - Ia: Extraction & Remediation
Hall-A1

11:00 2013 In situ stimulation and remediation of contaminated fractured soils
C Tsakiroglou[a], D Tzovolou[a], C Aggelopoulos[a], K E Klint[b], B Nilsson[b], W Slack[c], F Haeseler[d], Y Benoit[d], P DeLaplace[d], D Blancet[d], T Broeker[e], T Kasela[f], M Jeczalik[f]
[a]Foundation for Research & Tech, Greece
[b]Geological Survey of Denmark & Greenland, Denmark
[c]Frx Inc., USA
[d]IFP, France
[e]Broeker Drilling Company, Denmark
[f]Hydrogeotechnika Ltd., Poland

11:18 2399 Electrokinetic remediation of copper mine tailings
H K Hansen, A Rojo, L M Ottosen
Universidad Tecnica Federico Santa Maria, Chile

11:36 1332 Treatment of waste oil-in-water emulsions from a copper metalworking industry by vacuum evaporation: Effect of operating conditions
G. Gutierrez, A Cambiella, J M Benito, C Pazos, J Coca
University of Oviedo, Spain

11:54 2948 The influence of the chelating on the oxidation of phenol catalysed by chelated iron at mild conditions
I Sanchez[a], F Struber[a], J Font[b], A Fortuny[a], A Fabregat[a], C Bengoa[a]
[a]Universitat Rovira i Virgli, Spain
[b]UPC-Barcelona, Spain

12:12 2563 Absorption of pure carbon-dioxide gas in a foam-bed reactor
A Gaikwad, A N Bhaskarwar
IIT-Delhi, India

T1-5b 79 Wednesday 19/9 11:00 – 12:30
Sustainable & Clean Technologies - IIb: Energy Production
Hall-A2

11:00 2381 Sustainable hydrogen production via reforming of bio-oil using a novel spouted bed reactor
P N Kechagiopoulos[a], S S Voutetakis[b], A A Lemonidou[a], I A Vasalos[b]
[a]Aristotle Univ of Thessaloniki, Greece
[b]Centerfor Research & Tech, Greece

11:20 2707 Enhanced hydrogen production from biomass when coupled with carbon dioxide capture using CaO
N H Florin, A T Harris
University of Sydney, Australia

11:40 2210 Development of a tubular-flame burner for a fuel processing system in fuel cell systems
K Yagi, K Nakagawa, S Nojima
Mitsubishi Heavy Industries Ltd., Japan

T2-7c 80 Wednesday 19/9 11:00 – 12:30
Transport Phenomena in Porous/Granular Media – III
Room 18

11:00 1374 Determination of equilibrium, kinetic and thermodynamic parameters for the adsorption of cadmium (II) onto Castanea sativa shell
G Vázquez, R F Bea, M S Freire, J G Álvarez, G Antorrena
Univ of Santiago de Compostela, Spain

11:20 1925 Viscous stabilization of drying front: three-dimensional pore network simulations
T Metzger, E Tsotsas
Otto-von-Guericke University, Germany

11:40 2972 Time and bed height dependent concentration vs. particle radius profiles in packed-bed adsorption columns: Non-equilibrium model simulation studies
A R Özdural
Hacettepe University, Turkey

12:00 2015 Immiscible and Miscible Displacement in Heterogeneous Porous Media: From Soil Column Experiments to a Dynamic Large-Scale Network Simulator
C A Aggelopoulos, C D Tsakiroglou
ICE-FORTH, Greece

T2-14b 81 Wednesday 19/9 11:00 – 12:30

Electrochemical Engineering – II

Room 16

11:00 3250 Treatment of textile wastewater by electrocoagulation using Al and Fe electrodes
F Lapicque[a], I Zongo[a], J-P Leclerc[a], J Wethe[b]
[a]CNRS-ENSIC, France
[b]IIIEEI, Burkina Faso

11:20 3585 Pilot plant study of the electrooxidation of landfill leachates using BDD anodes
A Urtiaga, A Cabeza, A Anglada, G Perez, I Ortiz
University of Cantabria, Spain

11:40 3449 P-Graph Methodology for Cost-Effective Reduction of Carbon Emissions Involving Fuel Cell Combined Cycles
F Friedler[a], P Varbanova[a], J Klemeš[b]
[a]University of Pannonia, Hungary
[b]The University of Manchester, UK

12:00 1771 Mechanism of capture of ionic impurities from electrolytes, based on a bipolar cell of oscillating porous electrodes, spaced by the equilibrium distances
O C Bustos[a], G M Cifuentes[a], R M Perez[a], J C Santana[b], J T Torres[b]
[a]Universidad de Santiago de Chile, Chile
[b]Universidad Catolica de Valparaiso, Chile

T4-6 82 Wednesday 19/9 11:00 – 12:40
Process Analytical Technology – PAT

Room 20

11:00 197 Process Analytical Technology, quality by design and scientific-risk based approaches - fundamental change in the pharmaceutical industry
A Brindle, L Linderg-Nielsen
Novo Nordisk Engineering, Denmark

11:20 878 Simultaneous monitoring of crystal and mother liquor phase properties during batch crystallization using in-line Raman spectroscopy
H Qu, M Louhi-Kultanen, J Kallas
Lappeenranta Univ of Technology, Finland

11:40 2692 Application of tBTEM and other multivariate techniques to quantitative in-situ UV-Vis measurements
F Gao, H Zhang, L Guo, M Garland
ICES, Singapore

12:00 2613 Acoustic chemometrics monitoring of chemical production processes – Systematic methods and tools for managing the complexity
M Halstensen, K Esbensen
Aalborg University, Denmark

12:20 2870 Design of process monitoring and analysis systems, using a model-based computer aided framework
R Singh, K V Gernaey, R Gani
Technical University of Denmark, Denmark

T4-9c 83 Wednesday 19/9 11:00 – 12:40
Process Simulation & Optimization - III

Room 19

11:00 1914 Robust MINLP optimization model for petrochemical network design under uncertainty
K Al-Qahtani, A Elkamel, K Ponnambalam
University of Waterloo, Canada

11:20 3131 A hybrid modelling approach in the simulation of integrated urban wastewater systems
B Ráduly, E Lindblom, K V Gernaey
Technical University of Denmark, Denmark

11:40 2853 Optimisation parameters of the reactive separations with very fast chemical reaction
J Slava, Marcel Kotora, J Markos
Slovak Univ of Technology, Slovakia

12:00 1316 Local approximation to complex models for efficient optimisation: application to crystallisation processes
A Yang, X Ou, G Montague, E B Martin
University of Newcastle-upon-Tyne, UK

12:20 2634 Performance of esterification system in reaction-distillation column
E A Edreder[a], I M Mujtaba[a], M.M. Emtir[b]
[a]University of Bradford, UK
[b]Libyan Petroleum Institute, Libya

T5-1 84 Wednesday 19/9 11:00 – 12:40
Biochemical Engineering

Aud-10

11:00 3388 Bioprocess Intensification: Application of a Rotating Packed Bed Bioreactor for Mass Transfer Enhancement in Fermentation Systems
C D Cartwright, K V K Boodhoo
University of Newcastle-upon-Tyne, UK

11:20 3006 Template Induced Crystallization for In-Situ Product Removal from biochemical processes
J Urbanus[a], C P M Roelands[a], J H ter Horst[b], D Verdoes[a], P J Jansens[b]
[a]TNO Science & Industry, Netherlands
[b]Delft Univ of Technology, Netherlands

11:40 2050 A stoichiometric model for the metabolism of Gluconacetobacter xylinus
I H Velasco-Bedrán[a], U Arechiga-Viramontes[b], F Lopez-Isunza[b]
[a]Escuela Nacional de Ciencias Biologicas I. P. N., Mexico
[b]UAM-Iztapalapa, Mexico

12:00 1598 Steady-State Multiplicity of a Continuous Biofilm Reactor
M E Russo, P L Maffettone, A Marzocchella, P Salatino
University of Napoli "Federico II", Italy

12:20 2504 Combining Membrane Separation and Fermentation Processes for improved performance
J U Rype[a], A Garde[a], A Vrang[b], S Madsen[b], G Jonsson[c]
[a]Jurag Separation a/s, Denmark
[b]Bioneer a/s, Denmark
[c]Technical University of Denmark, Denmark

S4-B 85 Wednesday 19/9 11:00 – 12:30
EPIC-1: Alternative Energy Forms & Transfer Mechanisms (AE)

Aud-11

11:00 1834 Enhancement of Solid Dissolution by Ultrasound
H Grénman, E Murzina, M Rönnholm, K Eränen
Åbo Akademi, Finland

11:20 811 Intensification of photocatalytic processes
T V Gerven[a], G Mul[b], J A Moulijn[b], A Stankiewicz[b]
[a]Katholieke Universiteit Leuven, Belgium
[b]Delft Univ of Technology, Netherlands

11:40 3192 A study of free-radical copolymerisation of styrene with butyl acrylate using photo-initiation in an intensified spinning disc reactor
C G Dobie, K V K Boodhoo
University of Newcastle upon Tyne, UK

12:00 2027 Intensification of desorption processes by use of microwaves – an overview of

possible applications and industrial perspectives
R Cherbański, E Molga
Warsaw University of Technology, Poland

S4-C 86 Wednesday 19/9 11:00 – 12:30
EPIC-1: Intensified Hydrodynamics & Structured Environments (IHSE-1)
Aud-12

11:00 477 PI in process development and production through micro process systems
O Lade, T Bayer, M Kinzl
Siemens AG, Germany

11:20 3410 Advanced Separations, Including Distillation, Using Microchannel Architecture for Process Intensification
L Silva, R Arora, A Tonkovich, A Glass, D Weidert, M Fanelli, D Qiu, R Litt
Velocys Inc, USA

11:40 2047 Experimental and numerical study of the use of nanofluids in compact heat exchangers
M N Pantzali, A G Kanaris, A A Mouza, M J Assael, S V Paras
Aristotle Univ of Thessaloniki, Greece

12:00 2166 Small Scale Continuous Reactors in Process Development
M. Wernersson
AstraZeneca, Sweden

S8-A-B 87 Wednesday 19/9 11:00 – 12:45
Chemical Product Design & Engineering – I (CPD&E - 1) plus Keynote Lecture
BV1

11:00 1981 Development of a new biosynthetic hyaluronic acid for enhanced skin moisturization and anti-aging (Keynote)
K Schwach-Abdellaoui, F Guillaumie
Novozymes A/S, Denmark

11:30 901 Development Of Styrene-methyl Metacrylate Copolymer Microcapsules Containing Phase Change Materials
M L Sánchez, J F Rodríguez, P Sánchez, A De Lucas, M Carmona
University of Castilla la Mancha, Spain

11:48 4094 GRINDSTED Soft-N-Safe - a new efficient green plastisizer
B Nielsen
Danisco A/S, Denmark

12:07 3853 Formulation of an agrochemical product using neural network driven design
G A Bell, R D Brockbank
Syngenta Ltd., Denmark

12:26 1477 Enzyme-based Antifouling Coatings
S M Olsen[a], L T Pedersen[b], S Kiil[a], M H Laursen[b], K Dam-Johansen[a]
[a]Technical University of Denmark, Denmark
[b]Hempel A/S, Denmark

S5-C 86 Wednesday 19/9 11:00 – 12:30
Keynote Lecture LMC Congress/Food Symposium
Hall-A3

11:00 *Peter Fryer*
University of Birmingham, UK

11:30 Bioprocessing in Health and Nutrition
Andrew Morgan
Danisco, UK

89 Wednesday 18/9 13:30 – 15:00
Poster Session
Exhibition Area

T2-P13: Catalysis – Poster

171 Catalyst deactivation by polyaromatics during LCO upgrading to high quality diesel
R G Tailleur
Texas A&M University, USA

422 Esterification of aromatic olefins with acetic acid in the presence of sulphuric acid as a catalyst
P J Martinez, E Rus,S Rojano
University of Malaga, Spain

547 Semiempirical molecular orbital studies of the acylation step in the lipase-catalyzed ester hydrolysis in acylation step
J-H Zhao, H-L Liu
National Taipei University of Tech, Taiwan

618 Phase transfer catalyzed reaction of n-Octanol
T Sankarshana, J S Murthy
College of Technology, India

664 Effect of metal oxide additives on the properties of Cu/ZnO/Al2O3 catalysts in methanol synthesis from syngas
F Meshkini, M T Mazandarani, M Bahmani
Mazandarani University, Iran

777 Catalytic decomposition of nitrous oxide on nano sized palladium catalysts: The influence of precursor and the method of preparation
P S S Reddya, N Lingaiaha, P S S Prasada, I V Raob
Osmania University, India

852 Coherent – Synchronous Oxidation of CH4, C2H6, C3H8 by Hydrogen Peroxide
T Nagiev
National Academy of Sciences, Azerbaijan

895 Influence of textural properties and iron content on the activated carbon performance for catalytic wet air oxidation of phenol
M Baricot[a], S A Dastgheib[a], A Fortuny[b], F Stüber[a], C Bengoa[a], A Fabregat[a], L Le Coq[c], J Font[a]
[a]Universitat Rovira i Virgili, Spain
[b]UPC-Barcelona, Spain
[c]Ecole des Mines de Nantes, France

905 Study of the interaction of ozone with phenantroline for the determination of the oxidation kinetic of iron (II) with a FIA system
J N Laboulais, A Cerver, J I Torregrosa, M J Palomo
UPV-EPSA, Spain

918 Influence of Preparation Method of Fe3O4-Cr2O3 Catalysts for Water Gas Shift Reaction
J Dufour, C Martos, A Ruiz
Rey Juan Carlos University, Spain

1037 Reactivity of several olefins in the HDS of full boiling range FCC gasoline over PtPd/USY
S Magyar[a], J Hancsók[a], D Kalló[b]
[a]University of Pannonia, Hungary
[b]Hungarian Academy of Sciences, Hungary

1167 Synthesis of copper catalysts by coprecipitation of Cu(II) and Chitosan onto Alumina
U I Castro[a], I Sanchez[a], A Fortuny[b], F Stüber[a], A Fabregat[a], J Font[a], P Haure[c], C Bengoa[a]
[a]Universitat Rovira i Virgili, Spain
[b]UPC-Barcelona, Spain
[c]Univ Nacional de Mar del Plata, Argentina

1393 Synthesis of isobutyl propionate using Amberlyst 15 as a catalyst
A I Citak, H L Hosgun
Eskisehir Osmangazi University, Turkey

1462 Effects of Nickel Impregnation Profiles on

Partial Oxidation Ethanol Reaction
C Diana, J Tatiana, C Gabriel, G J Mario, M J Carlos, G Liliana
Universidad de los Andes, Colombia

1686 Dehydrocondensation of 1-hexanol to di-n-hexyl ether (DNHE) on Amberlyst 70
E. Medina, R Bringué, J Tejero, M Iborra, C Fité, J F Izquierdo, F Cunill
University of Barcelona, Spain

1790 Hydrogenation of CO Over a Cobalt/Cerium Oxide Catalyst for Production of Lower Olefins
M Haghshenas Fard, L Maleki, M Khoshnoodi , F Banitaba
Islamic Azad University, Iran

1826 Activity and synergetic effects of Mo sulfide catalysts promoted by Pd, Rh, Pt and Ru in HDS of benzothiophene
D Gulková, Z Vít, L Kaluža, M Zdražil
Institute of Chem Process Fundamental, Czech Republic

1986 SCR of NO by C3H6 over Cu-Fe-PILC in the presence of oxygen and steam
P B García, F Dorado, A D Lucas, A D LConsuegra, A N Márquez, J L Valverde, A Romero
University of Castilla La Mancha, Spain

1989 Influence of the reaction temperature on the electrochemical promoted catalytic behaviour of Pt impregnated catalyst for the reduction of Nitrogen oxides under lean burn conditions
A de Lucas-Consuegra, F Dorado, P B Garcia, A Nieto-Marquez, J L Valverde
University of Castilla La Mancha, Spain

1996 Catalytic Growth of Structured Nitrogen-Containing Carbon over Unsupported and Y Zeolite Supported Ni and Co Catalysts
A N Márquez[a], A Romero[a], P B García[a], M A Keane[b], J L Valverde[a]
[a]University of Castilla-la Mancha, Spain
[b]Heriot-Watt University, UK

2061 The Effect of Lanthanum on the Performance of Pt-Sn/Al2O3 Reforming catalysts
I C Andrade, T V García
UAM-Iztapalapa, Mexico

2272 Esterification with cation exchange resin catalysts: The concept of an active surface layer
Willie Nicol
University of Pretoria, South Africa

2390 Characteristics of the support and active phases of Monolithic Co/Al2O3-SO4 catalysts for CH4-SCR
S B Rasmussen[a], J C Martin[b], M Yates[b], P Avila[b]
[a]Technical University of Denmark, Denmark
[b]CSIC, Spain

2572 Catalysts on the base of layered oxides for the decomposition of water and waste compounds
I Zvereva, A Toikka, J C Liu
St Petersburg, State University, Russia

2796 Kinetic consideration of non-catalytic and catalytic oxidation of soot
V Tomašić[a], I Brnardić[a], H Jenei[b], S Zrnčević[a]
[a]University of Zagreb, Croatia
[b]PLIVA, Croatia

3290 Cyclohexane dehydrogenation for the evaluation of metallic sites accessibility in naphtha reforming bimetallic catalysts.
B Iñarra[a], M P G Marcos[a], J M Guil[b], M A G Ortiz[a]
[a]Universidad del Pais Vasco, Spain
[b]CSIC, Spain

3551 Effect of preparation method on perovskite catalyst structure for synthesis of Acetic acid from natural gas
H R Arandiyan, M Parvari
Iran Univ of Science & Technology, Iran
A new perovskite catalytic system consisting of LaMoV for Acetic acid direct synthesis from Ethane and CO_2
H R Arandiyan, M Parvari
Iran Univ of Science & Technology, Iran

4036 The investigation of Ru based Fischer Tropsch catalyst for the production of synthetic liquid fuels derived from bio-syngas
S Tungkamani, P Narataruksa, H Sukkathanyawat, N Kraikul, S Nivitchanyong, B Sakakini
King Mongkuts's Institute of Tech, Thailand

4144 ^{1}H and ^{13}C-DEPT PFG NMR Studies of Diffusion in Catalysts
D Weber, E H Stitt, L F Gladden
University of Cambridge, UK

T2-P14: Electrochemical Engineering – Poster

464 Dynamic Response of Oxygen Electrodes. Signal Deconvolution by Regularization Methods
F López, A Abad, J N Laboulais
UPV-EPSA, Spain

1190 Porous electrodes based on Ti, Zr and Co oxides for electrochemical oxygen sensors
G Y Kolbasov, V S Vorobetz, N D Ivanova, O A Stadnik
Institute of General & Inorganic Chemistry, Ukraine

1201 Elimination of organic compounds in wastewater by advanced oxidation technologies
S Rojano, Á Fernández
Municipal Water Company of Malaga, Spain

2110 Kinetic and thermodynamic study of the adsorption of natural organic matter on granular activated carbon
N C Alanís, B P Ayo, U I Velasco, J I Á Uriarte, J R G Velasco
University of the Basqe Country, Spain

2396 Electrochemical generation of Fenton's reagent to treat spent caustic wastewater in oil production
H K Hansen, P Nuñez, N Rodriguez, J Guzman
Univ Tecnica Federico Santa Maria, Chile

3489 Recovery of zinc by electrochemical remediation of zinc oxide-containing waste
F Lapicque[a], P Guillaume[b], N Leclerc[b], C Boulanger[b]
[a]CNRS-ENSIC, France
[b]Université Paul Verlaine, France

3593 Cd(II) removal from aqueous solutions by adsorption onto activated carbon
F Natale, A Erto, A Lancia
University of Naples, Italy

3693 Water condensation in gas distribution plates of PEMFCs: flow and removal from the grooved patterns of the plates
C Bonnet, J Ramousse, N Doss, F Lapicque, M Boillot
CNRS-ENSIC, France

S4-P-1: EPIC-1 Poster Session – I

1105 High-fidelity DEM-CFD modeling of packed

S5-P-1: Innovations in Food Technology – Poster Session I

354 Color (gray values) estimation during roasting coffee
J A Hernández, B Heyd, C Irles, G Trystram
Autonomous University of Morelos State (UAEM), Mexico

1319 Application of discrete modelling approach to yeast drying
F Debaste, V Halloin
Université Libre de Bruxelles, Belgium

1325 The ecological impact of the sugar sector – Aspects of the change of a key industrial sector in Europe
M Narodoslawsky
TU-Graz, Austria

1497 Objective function analysis for tropical fruits and coffee drying: Energy vs. Quality aspects
C A Cardona a., C E Orrego a., V R Nicoletti b., P J Amaral c., G I Giraldo a.
a. National University of Colombia at Manizales, Colombia
b. Universidade Estadual Paulista, Brazil
c. Universidade de São Paulo, Brazil

1499 Energy and Exergy analysis of tropical fruits dehydration using different dryers
C A Cardona[a], C E Orrego[a], J Tellis[b], A L Gabas[c], O D Hernández[a]
[a]National University of Colombia at Manizales, Colombia
[b]Universidade Estadual Paulista, Brazil
[c]Universidade de São Paulo, Brazil

2629 Modelling of an Immobilized Glucose Isomerase Packed Bed Bioreactor
R Khalilpour[a], R Roostaazad[b], J Razavi[b]
[a]NUS, Singapore
[b]Sharif University of Technology, Iran

3366 Antioxidant Components Preservation In Vegetables Under Microwaves Processing
A A Barba[a], A Calabretti[b], M Amore[b] A L Piccinelli[a], L Rastrelli[a]
[a]University of Salerno, Italy
[b]University of Trieste, Italy

3811 The orotate transporter oroP from Lactococcus lactis can be used both as a very efficient, food-grade selection and counter-selection marker for strain construction in many different organisms
E Defoor, J Martinussen
Technical University of Denmark, Denmark

3813 Analysis of plasmid pDBORO – A plasmid encoding an orotate transporter from Lactococcus lactis subsp. lactis biovar. diacetylactis strain DB0410
E Defoor, J Martinussen
Technical University of Denmark, Denmark

3915 "Green" Alternatives to Conventional Organic Solvent: A Closer Look at the Screening of Room Temperature Ionic Liquids (RTILs) for the Biosynthesis of Lipophilic Flavonoid Esters
B M Lue, Z Guo, X Xu
Technical University of Denmark, Denmark

4004 Quality of paprika powder during heating by infrared radiation
N Staack[a], E Borch[a], D Knorr[b], L Ahrné[a]
[a]Swedish Institue for Food and Biotechnology, Sweden
[b]Berlin University of Technology, Germany

4008 Oxidative stability of mayonnaise based salads enriched with fish oil
A-D M Sørensen[a], N S Nielsen[a], C Jacobsen[b]
[a]Technical University of Denmark, Denmark
[b]Danish Institute for Fisheries Research, Denmark

4016 Peptidase activities in different strains of Lactobacillus helveticus
M P Jensen, F K Vogensen, Y Ardö
Copenhagen University, Denmark

4038 Regulation of early gene expression in the temperate lactococcal phage TP901-1
M Pedersen, L L Leggio, J G Grossmann, S Larsen, K Hammer
Technical University of Denmark, Denmark

4064 The effect of concentration, temperature, pH, and ions on the rheological properties of xanthan gum, tara gum and their mixtures
K Vaher, K Laos, A Sõrmus
Compentence Center of Food and Fermentation Technologies, Estonia

4066 Crystallization of the supersaturated sucrose solutions in the presence of fructose, glucose, corn syrup and lactos
E Kirs
Compentence Center of Food and Fermentation Technologies, Estonia

4106 Connection between sensory quality and consumer's preference of salmon
D G Petersen
Technical University of Denmark, Denmark

4108 Quartz crystal microbalance with dissipation analysis of interactions between specific milk molecules and instestinal brush border membranes of importance for mammalian health
S B Nielsen, D E Otzen, J Stagsted
University of Aarhus, Denmark

4114 Direct-Affinity Reverse Extraction (DARE) screening for bioactive food-derived peptides
A L W Jørgensen, H R J Madsen, J Stagsted
University of Aarhus, Denmark

4116 Eating quality of wheat bread with potato fibres
U Kidmose
University of Aarhus, Denmark

4117 Shelf-life prediction of convenient foods by accelerated storage studies and sensory analyses
M Nuin , B Alfaro, C Abaroa
AZTI-Tecnalia, Spain

4119 Texture modification in acid milk gels produced at low temperature
H A Ashish, S Pyett, B Bergenståhl
Institutionen för livsmedelsteknik, Sweden

4121 Rheological Measurements Of Yolk To Characterise Origin And Processing Properties Of Eggs
A Laca, B Paredes, M Díaz
University of Oviedo, Spain

4122 Casefindings From Interviews With Danish Food Sector Executives On Their Responsibilit In Counteracting Overweight And Obesity
M S Jørgensen, B Mikkelsen
Technical University of Denmark, Denmark

4123 Mechanisms of Selenium-dependent antioxidant properties in milk
M R Clausen, J Stagsted
University of Aarhus, Denmark

4127 Molecular gastronomy – cooking of meat
L Mortensen
University of Copenhagen, Denmark

4128 Perspectives, Knowledge And Consumption

Frequency Of University Students For Functional And Light Foods
A Nazan, C M Ali
Selcuk University, Turkey

4129 Nutritional Habits And Food Consumption Frequency Of Obese And Non Obese Women
A Nazan, S Hasipek
Selcuk University, Turkey

4130 Evaluation of lipid and protein oxidation during processing and storage of fatty fish mince
S Eymard, C P Baron, C Jacobsen
Technical University of Denmark, Denmark

4148 The Effects Of Packaging Materials And Filling Methods On Some Characteristics Of Herby Cheese (otlu Peynİr)
Z Tarakci
Ordu University, Turkey

4149 The Effect Of Adjunct Cultures On Some Chemical And Biochemical Properties Of White-brined Cheese
Z Tarakci, Y Tuncturk
Ordu University, Turkey

4150 Optimization of drying parameters for sweet pepper (Capsicum annum. L)
J P Pandey
B Pant University of Agric, & Tech., India

4151 Partition coefficient of ions (Na+, K+, Mg++, Ca++, Cl-) in solid/liquid system
C Mouawad, E Tehrany,S Desobry
Laboratoire de Science et Génie Alimentaires (LSGA), France

S-8P: Chemical Product Design & Engineering - Poster (CPD&E - P)

386 Production of Floral Dye from different flowers available in West Bengal for Textile & Dye Industry
M P Saha, S Datta
ITME College, India

412 Vacuum and Convective Drying of Wood: FTIR spectra analysis, colour degradation, and antioxidant activity comparison
S Sandoval, F Marc, W Jomaa, J R Puiggali
Université Bordeaux 1, France

1100 The use of an Experimental Design method to evaluate the influence of process parameters in the graft polymerization of acrylic acid onto cassava starch
J R Witono, I W Noordergraaf, H J Heeres, L P B M Janssen
University of Groningen, Netherlands

1196 Mechanochemical Activation of Mixtures for Low-Melting Glasses Production
M Vlahovic, S Martinovic, P Jovanic, T Boljanac, V Vidojkovic
Institute for Technology of Nuclear & Other Mineral Raw Materials, Serbia

1294 Absorption of Menthol from Iranian yogurt drink into PET bottle
M Farhoodi[a], Z Emam-Djomeh[a], M R Ehsani[a], A Oromiehie[b]
[a]University of Tehran, Iran
[b]IPPI, Iran

1296 Migration of selected contaminants (DEHA, DEHP and ethylene glycol) from PET bottles into Iranian yogurt drink during storage time
M Farhoodi[a], Z Emam-Djomeh[a], M R Ehsani[a], A Oromiehie[b]
[a]University of Tehran, Iran
[b]IPPI, Iran

1340 Mass Transfer Of The Bioactive Substances In The Solid-liquid Extraction
J Savkovic-Stevanovic, R Beric, J Djurovic
Faculty of Technology & Metallurgy, Serbia

1367 Valorisation Of Lignocellulosic Waste Materials: Tannins As A Source Of New Products
G Vázquez, M S Freire, J González-Álvarez, G Antorrena
Univ of Santiago de Compostela, Spain

1467 New developments in solid-state modification of polypropylene
E Borsig[a], A Gotsis[b], M van Duin[c], F Picchioni[d]
[a]University of Bratislava, Slovakia
[b]Technical Univ of Crete, Greece
[c]University of Groningen, Netherlands
[d]DSM, Netherlands

1718 Modelling of Active Ingredient Release from an Emulsion and its Dependence Upon Formulation
F P Bernardo, P M Saraiva
University of Coimbra, Portugal

1813 The Corrosion Process of Brass and its Inhibition in Acidic Solutions
Z Avramovic, M Antonijevic
TiR, Copper Smelter & Raffinering Plant, Serbia

2122 Innovative technology of atmospheric fluidized bed freeze drying for production of pharmaceutical powders with predefined structure
N Menshutina[a], A Zerkaev[a], A Korneeva[a], H Leuenberger[b]
[a]Mendeleev Univ of Chem Tech, Russia
[b]University of Basel, Switzerland

2161 Accelerated testing; faster development of protective coatings
P A Sørensen[a], S Kiil[a], C Weinell[b]
[a]Technical University of Denmark, Denmark
[b]Hempel A/S, Denmark

2309 Corelation between contents of the friction and lubrification compounds and structures of the friction materials
A Popa[a], I Cârceanu[a], V Cândea[b], C Macovei[a], P Neagu-Manicatide[a]
[a]Metallurgical Research Institute of Bucharest, Romania
[b]Technical Univ of Cluj-Napoca, Romania

2333 About The Structure And Properties Of Heavy Alloys For Special Use
I Carceanu[a], A Popa[a], I Roceanu[b], G Coşmeleata[c], I Nedelcu[d]
[a]Metallurgical Research Institute of Bucharest, Romania
[b]National Defence University, Romania
[c]Politehnica Univ of Bucharest, Romania
[d]SC Prelucrari Metalurgice SRL, Romania

3056 Synthesis Of Super Fine Aragonite-type Calcium Carbonate By Precipitation In Ultrasonic Field
C D Mateescu , M Mocioi , C Sarbu , F Branzoi
National Isntitute for Material Physics, Romania

3143 A Simple Freeze Dryer for Dehydration of Roses
S H Hashemabadi, F Aghili, F Shams
Iran Univ of Science & Technology, Iran

3156 Case-based reasoning system for development of tablet formulations
E A Ershova, K Chansanroj, N V Menshutina
Mendeleev Univ of Chem Tech, Russia

3166 Highly productive droplet formation by

vertical elongation of focused laminar flow in microchannel
D Saeki[a], S Sugiura[a], T Baba[a], T Kanamori[a], S Sato[b], S Mukataka[b], S Ichikawa[b]
[a]NIAIST, Japan
[b]University of Tsukuba, Japan

3433 Evaluation of tomato paste as a potential raw material for lycopene extraction
R Lavecchia, A Zuorro
University of Rome, Italy

3683 Development of reactive prepolymers with terminal NCO groups as rheology modifiers of lithium lubricating greases
G Moreno[a], C Valencia[a], J M Franco[a], C Gallegos[a], A Diogo[a], J C M Bordado[b]
[a]Universidad de Huelva, Spain
[b]Universidad Tecnica de Lisboa, Portugal

4074 Environmental assessment of foundry sand based brick in different steps of its life-cycle using leaching tests
R Alonso, M C Díaz, A Coz, M Álvarez-Guerra, J R Viguri, A Andrés
University of Cantabria, Spain

T1-4b 91 Wednesday 19/9 15:00 – 17:00
Sustainable & Clean Technologies - Ib: Extraction & Remediation
Room 18

15:00 715 A modified UCT method for enhanced biological phosphorus removal
E Vaiopoulou, A Aivasidis
Demokritos Univ of Thrace, Greece

15:20 4048 Kinetics of fluoxetine and triclosan oxidation during municipal wastewater ozonation
S Suarez[a], M Dodd[b], F Omil[a], J M Lema[a]
[a]Univ of Santiago de Compostela, Spain
[b]EAWAG, Switzerland

15:40 1600 Characterization of a granular-immobilised laccase bioreactor for the conversion of synthetic dyes
M E Russo, P Giardina, A Marzocchella, P Salatino, G Sannia
University of napoli Federico II, Italy

16:00 1970 The influence of novel disinfection strategies in the removal of humic substances
U Iriarte-Velasco, Jon I Alvarez-Uriarte, J R Gonzalez-Valesco
University of the Basque Country, Spain

16:20 3116 Dynamic modeling of a continuously moving bed biofilter performing tertiary nitrification and filtration
G Sin[a], J Weijma[b], H Spanjers[a], I Nopens[a]
[a]Ghent University, Belgium
[b]PAQUES Bv, Netherlands

16:40 1955 The sustainable potential of enzymes within detergency
V S Nielsen, S Elisson, P Skagerlind
Novozymes A/S, Denmark

T1-5a 92 Wednesday 19/9 15:00 – 17:00
Sustainable & Clean Technologies - IIa: Energy Production
Room 19

15:00 176 Havesting Straw Bio-Oil on the Field
N Bech, P A Jensen, K Dam-Johansen
Technical University of Denmark, Denmark

15:15 1068 Novel strategy for the production of a generic fermentation feedstock based on particulate bioprocessing
C Botella, R Wang, A Koutinas, C Webb
The University of Manchester, UK

15:30 1412 Pre-treatment processes of lignocellulosic material for bioethanol conversion: Steam explosion
M T Garcia-Cubero, S Bolado, G Gonzalez, I Catalina, I Lopez, A Miranda
University of Valladolid, Spain

15:45 3802 Ethanol Production from Waste Sweet Potatoes Using Recombinant *Zymomonas mobilis*
M N Karim, B Han
Texas Tech University, USA

16:00 700 Immobilized *thermomyces lanuginosus* lipase for methyl ester production from sunflower oil
D Y Koseoglu, N Dizge, B Keskinler
Gebze Institute of Technology, Turkey

16:15 2296 Transesterification of different vegetable oils to produce biodiesel
L Rodriguez, A Perez, M J Ramos, A Casas, C M Fernandez
University of Castilla La Mancha, Spain

16:30 40 Operating parameters for the circulating fluidized bed (CFB) pyrolysis of biomass
M van de Velden[a], J Baeyens[a], I Boukis[b]
[a]University of Birmingham, UK
[b]Helector Ltd., Greece

16:45 348 Biodiesel characterization using electronic nose and artificial neural network
D Giordani, H F Castro, P C Oliveira, A F Siqueira
University of Sao Paulo, Brazil

T2-6a 93 Wednesday 19/9 15:00 – 17:00
Interfacial & Colloidal Phenomena – I
Room 17

15:00 2760 Three-phase behavior of surfactant-polymer mixture
S B Chen, G Q Zhao

15:20 3602 Effect of surfactant on stagnant slow aggregation kinetics of polymer colloids
M Lattuada, H Wu, M Morbidelli

15:40 143 Interfacial Tension Behavior in Oil-Water Systems Related to Crude Oil Recovery
V Hornof, G H Neale

16:00 1095 A study of how surface wetting may affect the coating layer when coating paper
C G Berg, N C Berg

16:20 2197 Interfacial instability on bubble surface during chemosorption
S P Karlov, D A Kazenin, A V Vyazmin, D A Polyanin

16:40 626 The Experimental Study on Mean Drop Size in a Horizontal Mixer-Settler Extractor
A Khakpay, H Abolghasemi, M G Maragheh, A S Khorshidi

T2-8b 94 Wednesday 19/9 15:00 – 17:00
Membranes and Membrane Science – II
Room 16

15:00 1861 Metal affinity chromatography with a chitosan/ceramic membrane
C J Muvdinova, D P Jeanjean, M Barboiu, M P Belleville, M Rivallin, G Rios
Institute Européen des Membranes, France

15:20 2353 Experimental characterization and modelling of affinity membrane
J Labanda, J Llorens
University of Barcelona, Spain

15:40 2341 Measurement of adsorption equilibrium and kinetics of water and alcohols on pervaporation membrane top layer pellets by gravimetrical vapor adsorption
B Bettens, J Degrève, B V Bruggen, H M V Veen, C Vandecasteele
K U Leuven, Belgium

16:00 1717 In-Situ Preparation of Immobilized Liquid

Membranes Using Inorganic Supports and Non-Volatile Liquids
F F Krull[a], P Wasserscheid[b], T Melin[a]
[a]RWTH Aachen, Germany
[b]Univ of Erlangen-Nurenberg, Germany

16:20 763 Hydrodynamics and concentration polarization in NF/RO spiral wound modules with ladder-type spacers: experimental and numerical work
M N de Pinho, V Semiao, V Geraldes
Technical University of Lisbon, Portugal

16:40 2345 Catalytic zeolite membrane reactors for CO-free hydrogen production
P Bernardo, C Algieri, G Barbieri, E Drioli
Institute on Membrane Technology, Italy

T2-9 95 Wednesday 19/9 15:00 – 17:00
Crystallization
Room 20

15:00 3894 Towards Predictive Simulation of Single Feed Semibatch Reaction Crystallizatio
Å C Rasmuson, M Ståhl
Royal Institute of Technology KTH, Sweden

15:20 886 Investigation, mathematical modelling and simulation of the crystallisation process in a circulation crystalliser
M I Dorofeeva[a], E M Koltsova[a], A Lieb[b], M Kind[b]
[a]Mendeleev Univ of Chem Tech, Russia
[b]University of Karlsruhe, Germany

15:40 1504 Tailoring Morphology and Particle Size Distributions via Crystallization
J Heinrich, J Ulrich
Martin-Luther Univ Halle-Wittenberg, Germany

16:00 680 Crystallizing the Right Polymorphic Form: An Integrative Approach
C Wibowo[a], S W Lin[b], K M Ng[b]
[a]ClearWaterBay Technology Inc., USA
[b]Hong Kong Univ of Sci & Tech, Hong Kong

16:20 2854 The application of different seeding techniques for solution crystallization of ammonium sulphate
R Lakerveld, A N Kalbasenka, H J M Kramer, P J Jansens, J Grievink
Delft Univ of Technology, Netherlands

16:40 3158 Contribution of crystal-impeller and crystal-crystal collisions to the secondary nucleation
A Imran, E Wolf, H J M Kramer, P J Jansens
Delft Univ of Technology, Netherlands

S-3 96 Wednesday 19/9 15:00 – 17:00
Invited Session on Biotechnology: Honoring Prof. John Villadsen
Aud-10

15:00 1513 The role of chemical engineering in modern biotechnology
J Nielsen
Technical University of Denmark, Denmark

15:30 4071 A structured-segregated approach for modeling the dynamics of microbial populations in the three-dimensional turbulent field of a stirred-tank bioreactor
M Reuss
University of Stuttgart, Germany

16:00 3595 Kinetic phenomena in the enzymatic hydrolysis of wheat arabinoxylan
A S Meyer, A Amous
Technical University ofDenmark, Denmark

16:30 1389 1389 - Process Integration onto Biochip Utilizing Novel Materials
T Kanamori
National Institute of Advanced Industrial Science & Technology, Japan

17:00 4073 Bioreaction Engineering: A discipline striving for independence
J Villadsen
Technical University of Denmark

S4-D 97 Wednesday 19/9 15:00 – 17:00
EPIC-1: Intensified Hydrodynamics & Structured Environments (IHSE-2)
Aud-11

15:00 64 Process Intensification, a tool for Innovative Products: achievements and prospects
J Jenck[a], P Burille[b]
[a]ENKI Innivation, France
[b]ECIPA, France

15:20 702 Process intensification of electro-organic synthesis by microstructuration
A Attour, S Rode, F Lapicque, A Ziogas, M Matlosz
LSGC-ENSIC, France

15:40 3183 Viscous Mixing Process Intensification: Innovations and Trends
P A Tanguy[a], K Takenaka[b]
[a]URPEI Ecole Polytechnique, Canada
[b]Sumitomo Mechanical & Equipment, Japan

16:00 3295 Break-up of nano-particle clusters in high-shear devices
J Bałdyga, W Orciuch, Ł Makowski, M Malski-Brodzicki, K Malik
Warsaw University of Technology, Poland

16:20 3729 Mobile Micro Reactor Technology For Industrial Production
J T Harmsel, S Pissavini, P Caze
Zeton, Netherlands

S4-E 98 Wednesday 19/9 15:00 – 17:00
EPIC-1: Intensified Plants & Process Integration (IPPI)
Aud-12

15:00 469 Energy-Saving Process Intensification of an Oil Refinery Distillation Plant by an Internal Heat Integration Method
K Kataoka[a], H Noda[a], T Mukaida[a], M Kaneda[a], H Yamaji[a], K Horiuchi[b], M Nakaiwa[c]
[a]Kansai Chemical Engineering Co, Japan
[b]Maruzen Petrochemical Co, Jaoan
[c]NIAIST, Japan

15:20 1026 Production of leather under the influence of compressed carbon dioxide
E Weidnera, M Rennera, H Geihslerb, G Brandina
Fraunhifer Institute UMSICHT, Germany

15:40 2565 Integrating fermentation and crystallization: a case study on the production of L-phenylalanine
M C Cuellar, A J J Straathof, J J Heijnen, L A M van der Wielen
Delft University of Technology, Netherlands

16:00 3738 Functional Design of Integrated Reaction and Separation Processes
G Schembecker[a], M Tylko[b]
[a]University of Dortmund, Germany
[b]Hexion Speciality Chemicals GmbH, Germany

16:20 1446 Integrated production of biodiesel from palm oil using in situ produced bioethanol
L F Gutiérrez[a], O J Sánchez[b], C A Cardona[a]
[a]National Univ of Colombia at Manizales, Colombia
[b]University of Caldes, Colombia

16:40 3148 Intensification of probiotics drying. Spray-drying of bifidobacteria biosuspension
N Menshutina, M Gordienko, A Avanesova,

A Voinovskiy
Mendeleev Univ of Chem Technology of Russia, Russia

S5-D 99 Wednesday 19/9 15:00 – 17:05
Meals - Convenience, Gastronomy & Quality (Food-1a)
Hall-A1

15:00 4099 Health through Convenience: The Technological Challenge
J A Nissen
Technical University of Denmark, Denmark

15:20 4058 An investigation of new product introductions in the Danish food industry: survey findings
D Baker
Copenhagen University, Denmark

15:35 4050 Does the morphology of fat crystals have impact on the rheologial properties of milk fat?
L Wiking[a], I Foubert[b], V D Graef[b], M Rasmussen[a], K Dewettinck[b]
[a]University of Arhus, Denmark
[b]Ghent University, Belgium

15:50 3865 Structural engineering of dairy products
R Ipsen
Copenhagen University, Denmark

16:05 2423 Non-crystalline formulation of lipophilic, surface active and hardly soluble active agents in water-dispersible carrier syste
R Engel[a], H Schubert[b], H P Schuchmann[b]
[a]BASF AG, Germany
[b]Karlsruhe University, Germany

16:20 4020 Functional properties of soft wheat (Triticum aestivum L.) grains: lignan profiles of conventional and old varieties from Italy
G. Dinelli, I Marotti, S Bosi, A Bonetti, S Benedettelli, A S Carretero
University of Bologna, Itlay

16:35 3975 Quality of yogurts prepared from UHPH-treated milk
M Serra, A J Trujillo, B Guamis, V Ferragut
Universidad Autonoma de Barcelona, Spain

16:50 3896 Interactions between macro-molecules and starter cultures in the cheese curd using antibody phage display technique and bioimaging
Z Duan
Copenhagen University, Denmark

S5-E 100 Wednesday 19/9 15:00 – 17:05
White BioTech & Related Processes (Food-2a)
Hall-A2

15:00 ***To be announced later***

15:20 3924 High gravity brewing- study of the affect of ethanol tolerance and nitrogen supplementation
M Piddocke[a], L Olsson[a], T L Soerensen[b], R Festersen[b]
[a]Technical University of Denmark, Denmark
[b]Novozymes A/S, Denmark

15:35 3522 Enzyme Extraction of Phenolics from Skins Grape Skins (Vitis vinifera L.) and apples (Malus domestica) in relation to the Chemical Compositional
A Arnous, A S Meyer
Technical University of Denmark, Denmark

15:50 56 Extraction of antioxidants from grape seed meal by aqueous ethanol solution
A Patankar
IPS Academy, India

16:05 3815 Regulation of pyrG gene expression in Lactococcus lactis is controlled by the amount of CTP through an attenuator mechanism involving reiterative transcription also known as stuttering
J, Martinussen,K Hammer
Technical University of Denmark, Denmark

16:20 2242 Development of a starter culture for cocoa fermentation in West Africa
K T Debrah[a], D S Nielsen[b], M Jakobsen[b], S S Dedeh[a]
[a]University of Ghana, Ghana
[b]Copenhagen University, Denmark

16.35 4101 Rapid, extensive extraction of polyphenols from red grapes
Jacob S Jensen[a], Anne S Meyer[b]
[a]Foss, Denmark
[b]Technical University of Denmark, Denmark

16:50 To be assigned

S5-F 100 Wednesday 19/9 15:00 – 17:05
Flexible Production, PAT & Modelling (Food-3a)
Hall-A3

15:00 3999 A tool for productive and environmentally efficient food production management
K Östergren, J Berlin, B Johansson, B Sundström, J Stahre, A-M Tillman

15:20 3904 Modelling of physical and chemical processes in the small intestine
A Tharakan[a], P Rayment[b], I T Norton[a], P J Fryer[a]
[a]University of Birmingham, UK
[b]Unilever, UK

15:35 2362 Effect of the formulation on the continuous manufacturing of foamed products
I Narchi, C Vial, G Djelveh
Université Blaise Pascal, France

15:50 1172 Contribution to the modelling of chocolate tempering process
F Debaste[a], Y Kegelaers[b], H B Amor[a], V Halloin[a]
[a]Université Libre de Bruxelles, Belgium
[b]Puratos Group, Belgium

16:05 1641 Modeling and simulation of vegetable oil processes
A Martinho[a], H A Matos[a], R Gani[b], B Sarup[c], W Youngreen[c]
[a]Technical University of Lisbon, Portugal
[b]Technical University of Denmark, Denmark
[c]Alfa Laval Copenhagen A/S, Denmark

16:20 1643 System Analysis and Automated Control of Fruit Ripening Processes
V C Hass[a], S Toemmers[b], K Kuehn[b], O Mierig[c]
[a]Hochschule Bremen, Germany
[b]University of Applied Sciences-Bremen, Germany
[c]Atlanta Group, Germany

16:35 3918 Dynamic optimization of baking operations using refinement method
H D C Esveld, R M Boom, G Straten, A J B Boxtel
Wageningen University, Netherlands

16:50 1501 Characteristic of a Dairy Production Line under Uncertainty
H Cheng, A Friis
Technical University of Denmark

S8-C 102 Wednesday 19/9 15:00 – 17:05
Chemical Product Design & Engineering - II (CPD&E - 2)
BV1

15:00 3285 Integrating Mixture Design within the Property Clustering Framework
C C Solvason, F T Eljack, N Chemmangattuvalappil, M R Eden
Auburn University, USA

15:20 3614 Transport Properties from Molecular

Simulation with the SPEADMD Model
J R Elliott, Z N Gerek, N H Gray
The University of Akron, USA

15:40 2249 Simultaneous product and processes design using reverse design algorithm
V Soni, J Abildskov, G Jonsson, R Gani
Technical University of Denmark, Denmark

16:00 1761 Effect of the Microstructure of Paracetamol Granules on Tablet Properties
U Bröckel[a], H Beilharz[b]
[a]Germany
[b]Pontepharm GmbH, Germany

16:20 1870 Polymer property modelling using grid technology for design of structured products
K C Satyanarayana, J Abildskov, R Gani
Technical University of Denmark, Denmark

16:40 3690 A Chemical Engineering Approach to Catalyst Development
K A Christensen
Haldor Topsøe A/S, Denmark

T1-K3 103 Wednesday 19/9 17:05 – 17:45
Theme-1 Keynote Lecture
BV1

4158 Autothermal Reforming - development of state of the art syngas technology for advanced fuel production
Martin Østberg, Thomas S Christensen, Kim Aasberg-Petersen, Martin S Skjøth-Rasmussen, Olav Holm-Christensen, Jens H Bak-Hansen
Haldor Topsøe A/S, Denmark

T2-K4 104 Wednesday 19/9 17:05 – 17:45
Theme-2 Keynote Lecture
Rooms 20

4086 New solid foam reactor packings for multiphase applications
Matthew J Jones, J Ulrich
Martin-Luther University Halle-Wittenberg, Germany

T3-K3 105 Wednesday 19/9 17:05 – 17:45
Theme-2 Keynote Lecture
Aud-12

1562 Functionalized Microporous Membranes and Bimetallic Nanoparticle Synthesis for Environmental Applications
Dibakar Bhattacharyya
University of Kentucky, USA

T3-K4 106 Wednesday 19/9 17:05 – 17:45
Theme-3 Keynote Lecture
Aud-11

4159 Field Driven Assembly in Nanotechnology
Juan J de Pablo
University of Wisconsin, USA

T4-K2 107 Wednesday 19/9 17:05 – 17:45
Theme-4 Keynote Lecture
Room 19

4043 Industrial Process Systems Engineering: Identification and Realization of Economic Potentials
Andreas Bode, E Uerdingen, T Wisniewski
BASF AG, Germany

S4-F 108 Thursday 20/9 08:45 – 09:30
EPIC-1 keynote Lecture 1
Aud-11

1434 *Reactive distillation: The front-runner of industrial process intensification*
J Harmsen
Shell Global Solutions, Netherlands

T2-6b 110 Thursday 20/9 08:45 – 10:30
Interfacial & Colloidal Phenomena – II
Room 17

08:45 441 COSMO-RS and COSMOmic: Thermodynamic Properties of Interfaces and Micelles from Ab Initio Quantum Chemistry
F Eckert
COSMOlogic, GmbH & Co KG, Germany

09:05 465 Mesoscopic simulation of surfactant oligomers behavior in aqueous solution and interface
H Wu, J B Xu, H Wen
Chinese Academy of Sciences, China

09:25 3264 Prediction of partitioning coefficients: potential for drug formulations and bioseparation technologies
W Arlt, I Smirnova, L Mokrushina, M Buggert
University of Erlangen-Nurenberg, Germany

09:45 784 Dissipative Particle Dynamics Simulation of Polymers Adsorption under Shear
B W Hao, J B Xu
Chinese Academy of Sciences, China

10:05 1061 Model Studies during the Preparation Steps of Supported Hydroteating Catalysts Examined by Raman Spectroscopy
P Beato, K Johannsen, A Nielsen, X Faber
Haldor Topsøe A/S, Denmark

T2-13a 111 Thursday 20/9 08:45 – 10:30
Catalysis – I
Room 18

08:45 1572 Deactivation of SCR catalysts by aerosols of potassium compounds: Elucidation of mechanisms by lab and pilot scale experiments
A D Jensen, J E Johnsson, Y Zheng
Technical University of Denmark, Denmark

09:05 851 Optimum water/syngas molar ratio in the feed for minimizing deactivation by coke in the single step synthesis of DME
I Sierra, J Ereña, A T Aguayo, J M Arandes, M Olazar, J Bilbao
Universidad del Pais Vasco, Spain

09:25 2995 Deactivation of Commercial SCR Vanadia-based Catalysts by Fuel Additives
F Castellino, A D Jensen, J E Johnsson
Technical University of Denmark, Denmark

09:45 3261 High Throughput Experimentation and Modeling as Tools for the Development of Green Alkylation Catalysts
E A Dejaegere, K Mantri, G V Baron, J F M Denayer
Vrije Universiteit Brussel, Belgium

10:05 1657 Tailored Distribution of MoO3 in the TiO2 and ZrO2 Supported Catalysts by Water-Assisted Spreading
L Kaluža, D Gulková, Z Vít, M Zdražil
Institute of Chem Process Fundamentals ASCR, Czech Republic

T5-K 112 Thursday 20/9 09:00 – 10:30
Theme-5 Keynote Lectures
Aud-10

09:00 4072 Modeling and Simulation of Cellular Networks: Different Approaches for Different Problems
W Wiechert
University of Siegen, Germany

09:45 4087 Biocatalytic synthesis of a biodegradable chelant (S,S-EDDS)
J M Woodley, H E M Law

Technical University of Denmark

T4-10 113 Thursday 20/9 08:45 – 10:30
Tools Integration - CAPE Methods & Tools
Room 19

08:45 2005 CFD-based analysis of the wall effect on the pressure drop in packed beds
T Atmakidis[a], E Y Kenig[a], E S Kikkinides[b]
[a]University of Dortmund, Germany
[b]University of Western Macedonia, Greece

09:02 2135 Systematic analysis and design of the hybrid processes
P T Mitkowski, G Jonsson, R Gani
Technical University of Denmark, Denmark

09:20 1603 Conceptual design and optimal tuning of decentralized control loops for chemical plants: Application to the Tennessee-Eastman Process
L T Antelo[a], O Exler[b], J R Banga[a], A A Alonso[a]
[a]CSIC, Spain
[b]University of Bayreuth, Germany

09:37 1948 A computer bsed tool for integrated design of wastewater treatment plants and advanced control systems
P Vega, F Alawneh, L Gonzalez, M Francisco, B Perez
University of Salamanca, Spain

09:55 1698 A Tabu Search-based algorithm for the integrated process and control system design
O Exler[a], N Faisca[b], L T Antelo[c], A A Alonso[d], J R Banga[c], E N Pistikopoulos[b]
[a]University of Bayreuth, Germany
[b]Imperial College London, UK
[c]IIM-CSIC, Spain
[d]CISC, Spain

10:12 3218 Model-based optimal control of the production of polyvinyl acetate
F Aller[a], G Kandare[a], L F Blázquez[b], D Kukanja[c], V Jovan[a], M Georgiadis[d]
[a]Institute Jizef Stefan, Slovenia
[b]University of Leon, Slovenia
[c]Mitol d.d., Slovenia
[d]Process Systems Enterprise, Greece

S5-G 114 Thursday 20/9 09:00 – 10:05
Process & Product Innovation (Food-4a)
Hall-A1

09:00 Visions of the virtual slaughterhouse
Martin Vester-Christensen
Technical University of Denmark, Denmark

09:20 2227 Tools for complementary product development
J R Olsen, A Friis
Technical University of Denmark, Denmark

09:35 4055 New innovative fats and oils with an healthy fatty acid profile
N D Clercq, I Foubert, K Dewettinck
Ghent University, Belgium

09:50 4034 Low-fat frying with infrared heating
L Ahrné
The Swedish Institute for Food and Biotechnology, Sweden

S5-G 114a Thursday 20/9 11:00 – 12:00
Process & Product Innovation (Food-4a) – contunues after coffee break
Hall-A1

11:00 96 PGSS - The innovative production of fluid-filled microcapsules
T Wendt
Ruhr-University Bochum, Germany

11:15 125 A short review of capacitive dielectric treatment of foodstuffs
F Marra
University of Salerno, Italy

11:30 512 Removal Of Dark Compounds From Fruit Juices By Membrane Separation
M E Carrín, M B Buglione, J E Lozano
PLAPIQUI (UNS-CONICET), Argentina

11:45 To be assigned

S5-H 115 Thursday 20/9 09:00 – 10:05
Hygiene, Hygienic Design & Unit Operations (Food-5a)
Hall-A2

09:00 Microbial cross contamination in food processing: Prevention and monitoring
Mogens Jacobsen
Copenhagen University, Denmark

09:20 3332 Pathogen inactivation by pulsed electric fields - a survey of processing conditions, equipment design and potential applications for heat sensitive products
S Toepfl[a], V Heinz[b]
[a]DIL-German Institute of Food Technology, Germany
[b]Berlin Institute of Technology, Germany

09:35 2263 Effects of ultra-high pressure homogenization on microbial and physico-chemical shelf-life of milk
J Pereda, V Ferragut, J M Quevedo, B Guamis, A J Trujillo
Universidad Autonoma de Barcelona, Spain

09:50 3900 Importance of CIP velocity
B B B Jensen
Technical University of Denmark, Denmark

S5-H 115a Thursday 20/9 11:00 – 12:00
Hygiene, Hygienic Design & Unit Operations (Food-5a) – contunues after coffee break
Hall-A2

11:00 4120 Modelling for food safety in simulated cheeses
E Noriega, A Laca, M Díaz
University of Oviedo, Spain

11:15 4132 Process Integration For The Fractionation Of Milk Proteins
M P Mier, R Ibáñez, I Ortiz
University of Cantabria, Spain

11:30 3977 The effect of thermosonication and pulsed electric fields on the inactivation of Listeria innocua in low fat milk
M W Ribeiro
UCD Dublin, Ireland

11:45 2768 Food sterilisation under high pressure-Fundamentals,new insights and challenges
A Mathys[a], S Toepfl[b], V Heinz[b], D Knorr[a]
[a]Berlin Institute of Technology, Germany
[b]DIL-German Institute of Food Technology, Germany

S5-I 116 Thursday 20/9 09:00 – 10:05
Modern Analysis: Chemical & Multivariate Analysis (Food-6a)
Hall-A3

09:00 4062 Gourmet potatoes: How to evaluate this?
A K Thybo[a], S Kreutzmann[a], M Bassompierre[b]
[a]Aarhus University, Denmark
[b]Copenhagen University, Denmark

09:20 4056 Quantifying Biological Variation
S G Erbou, M V Christensen, R Larsen, E V Olsen, B K Ersbøll
Technical University of Denmark

09:35 3909 Tools for easing understanding of complex

data
A J Lawaetz
Copenhagen University, Denmark

09:50 4041 Rapid Pattern Recognition, An Alternative Food Safety Solutions Or A Scientific Artefact?
M Bassompierre
Copenhagen University, Denmark

S5-I 116a Thursday 20/9 11:00 – 12:00
Modern Analysis: Chemical & Multivariate Analysis (Food-6a) – contunues after coffee break
Hall-A3

11:00 3025 Determination of the Fat Content of Beef using Microwave Methods
S K Ng[a], P Ainsworth[a], A Plunkett[a], A Gibson[b], G Parkinson[b], A Haigh[b], G Jacobs[b]
[a]Manchester Metropolitan University, UK
[b]The University of Manchester, UK

11:15 4035 Quantification of active lactic acid bacteria by flow cytometry
J Worm, R Stavnsbjerg, R M Schoth, K F Hansen
Christian Hansen, Denmark

11:30 3867 Rapid determination of alginate monomer composition using spectroscopy and chemometrics
T, Salomonsen, H M Jensen, F H Larsen, S B Engelsen
Danisco, Denmark

11:45 4002 In-line ultrasound Doppler based rheometry for processing applications
J Wiklund
SIK – The Swedish Institute for Food & Biotechnology, Sweden

S8-D,E 117 Thursday 20/9 08:45 – 10:35
Chemical Product Design & Engineering - III (CPD&E - 3) plus Keynote lecture

08:45 4089 The mechanism of adhesion between tyre-cords and rubber, as governed by interfacial phenomena (keynote)
J W M Noordermeer, W B Wennekes, R N Datta
University of Twente, Netherlands

09:15 3010 Gyroid membranes made from nanoporous block copolymers
P Szewczykowski[a], G Jonsson[a], R H Berg[b], M E Vigild[a], S Ndoni[b]
[a]Technical University of Denmark, Denmark
[b]Risø National Laboratory, Denmark

09:35 2318 Wood adhesive emulsions from thermsetting polyketones
Y Zhang, F Picchioni, A A Broekhuis
University of Groningen, Netherlands

09:55 1242 Green Starch Conversion Technology: Studies on Starch Acetylation in Supercritical CO2
A H Muljana, B H J Heeres, C L P B M Janssen
University of Groningen, Netherlands

10:15 3014 Effect of water activity on lipase enantioselectivity
A P Aklan, E Bayraktar, Ü Mehmetoglu
Ankara University, Turkey

S4-G 118 Thursday 20/9 09:30 – 10:30
EPIC-1: Intensified Hydrodynamics & Structured Environments (IHSE-3)
Aud-11

09:30 93 Hydraulic And Thermal Study Of A Compact Heat-exchanger Reactor
M A Bennani, S Elgue, C Gourdon, M Cabassud
Laboratory of Chem Eng – Toulouse, France

09:50 1858 Continuous Epoxidation of oleic esters in a micro reactor
D H Mueller, D Herzog, F Pontzen, S Eichholz, M A Liauw, L Greiner
RWTH Aachen, Germany

10:10 3445 Refined and extended investigation of microreactor based ionic liquid synthesis for further process intensification
V Hessel[a], P Löb[a], R Miszczuk[a], A Renken[b], L Kiwi-Minsker[b], M Uerdingen[c]
[a]Institut fur Mikrotechnik Mainz GmbH, Germany
[b]EPFL, Switzerland
[c]Solvent Innovation, Germany

S4-H 119 Thursday 20/9 09:30 – 10:30
EPIC-1: Multifunctionality (MF-1)
Aud-12

09:30 282 Reactive dividing-wall columns – towards process Intensification
A A Kiss, H Pragt, C van Strien
University of Amsterdam, Netherlands

09:50 3395 Autothermal catalytic reactors for hydrogen production: experimental and modelling analysis
D Scognamiglio[a], L Salemme[a], L Russo[a], M Simeone[a], P L Maffettone[a], S Crescitelli[a], C Allouis[b], G Volpicelli[a]
[a]University Federico II Naples, Italy
[b]Centro Nazionale delle Ricerche CNR, Italy

10:10 2433 Membrane reactors for process intensification
A Brunetti[a], G Barbieri[b], A Caravella[a], E Drioli[a,b]
[a]University of Calabria, Italy
[b]Institute on Membrane Technology, Italy

T2-13b 120 Thursday 20/9 11:00 – 12:30
Catalysis – II
Room 18

11:00 2966 Synthesis and characterization of copper-zirconia based catalysts for DeNOX in biomass fired units
S B Rasmussen[a], J D Hansen[a], A L Kustov[a], A D Jensen[a], P Simonsen[b], R Fehrmann[a], M Yates[c], J Blanco[c]
[a]Technical University of Denmark, Denmark
[b]DONG Energy, Denmark
[c]CSIC, Spain

11:20 875 Comparison of acid catalysts for the dehydration of methanol to dimethyl ether
I Sierra, J Ereña, A T Aguayo, J M Arandes, A G Gayubo, J Bilbao
Universidad del Pais Vasco, Spain

11:40 1578 Thermal stability of SCR catalysts containing vanadia on silica-titania for the use in diesel applications
C U I Odenbrand
Lund University, Sweden

12:00 960 Photocatalytic reactivity of the titanium oxide loaded on a stainless steel screen by a spraying method
F Shiraishi[a], T Itoh[a], Y Oda[a], H Nagayoshi[b], T Higuchi[b], K Tateishi[c]
[a]kyushu University, Japan
[b]FUJICO Co Ltd, Japan
[c]I-Quark Corporation, Japan

T5-2 121 Thursday 20/9 11:00 – 12:30
Design, Analysis & Control of Fermentation Processes
Aud-10

11:00 1452 A Mathematical Model for the Growth of Aspergillus niger in a Solid-State Fermentation.
I Reyes-Ocampo, C Castillo-Araiza, F Lopez-Isunza
UAM-Iztapalapa, Mexico

11:18 796 Non-linear Modeling Of Kefir Grains Growth Curve
M Tramšek, A Goršek
University of Maribor, Slovenia

11:36 1336 A model based nonlinear observer for simultaneous state and disturbance estimation in continuous anaerobic digesters
G Savvoglidis, C Kravaris, K Stamatelatou, G Lyberatos
University of Patras, Greece

11:54 1235 Determination of Immobilized Enzyme Apparent Kinetic Parameters in Packed-Bed Reactors: Presentation of a New Methodology
A R Özdural[a], C Webb[b]
[a]Hacettepe University, Turkey
[b]The University of Manchester, UK

12:12 4065 Product Optimization in a Fed-batch Fermentation Processes
A A Ahmad[a], B N A F A Samad[b], C K A Hamid[a]
[a]UTM, Malaysia
[b]Universiti Malaysia Pahang, Malaysia

T2-6c 122 Thursday 20/9 11:00 – 12:30
Interfacial & Colloidal Phenomena – III
Room 17

11:00 1979 Crystallization of proteins on polymeric membranes: how porosity, thickness and roughness affect the heterogeneous nucleation kinetics
E Curcio[a], G Profio[a], E Fontananova[a], S Simone[b], E Drioli[a,b]
[a]University of Calabria, Italy
[b]Institute on Membrane Technology, Italy

11:20 3630 Synthesis of Mesoporous Silica using Mixed Surfactant Templates: Predictions from Ternary Liquid Crystal Phase Diagrams
S E Rankin[a], R Xing[a], M S Rahman[a], S M Vyas[a], H-J Lehmler[b], B L Knutson[b]
[a]University of Kentucky, USA
[b]university of Iowa, USA

11:40 1849 Industrial Case-study: Re-emulsification of expired highly viscous emulsion product
L T Yee, N W Kiong, C W Jae, M Venugopa
*ICES, A*STAR, Singapore*

12:00 222 Surfactant-based separation technique in the removal of dissolved organics from water
I V Rao, P V Reddy
Osmania University, India

T4-3 123 Thursday 20/9 11:00 – 12:30
Supply Chain Management & Business Decision Support
Room 19

11:00 2956 2956 - Operations and logistic planning considering vendor uncertainties to enhance the flexibility and reduce the risk of chemical supply chain networks
G Kopanos, J M Lainez, M Badell, A Espuña, L Puigjaner
UPC-Barcelona, Spain

11:20 536 Real world pipeline scheduling with inventory management: a combined MILP and sequencing heuristic approach
S Relvas[a], H A Matos[a], A P Barbosa-Póvoa[a], J. Fialho[b]
[a]Instituto Superior Tecnico, Portugal
[b]CLC, Portugal

11:40 3730 A Milp Decomposition Approach For The Risk Management Within A Flexible Recipe Framework
S Ferrer-Nadal[a], G Guillén-Gosálbez[b], M Graells[a], L Puigjaner[a]
[a]UPC-Barcelona, Spain
[b]Carnegie-Mellon University, USA

12:00 25 Matching gasoline supply with distribution requirements optimizes depot storage capacity
E O Okeke
Nigerian National Petroleum Corp, Nigeria

T4-5 124 Thursday 20/9 11:00 – 12:30
Safety & Risk Management Systems
Room 20

11:00 3658 An easy evaluation method for reaction hazard
Y Fujimoto
National Institute of Occupational Safety & Health, Japan

11:20 1079 The relation between size of plant and risk: traditional processing versus intensive continuous processing
P Khoshabi, P N Sharratt
The University of Manchester, UK

11:40 492 Dangerous industrial installation and critical managerial elements: the inspections on safety management systems
V. Bartolozzi, S Bajardi, L Marceca, F Vasile, S Marino
Regional Agency for Environmental Protection, Italy

12:00 1074 Enhancing abnormal events management by the use of quantitative process hazards analysis results
I Yélamos[a], A Bojarski[a], G Joglekar[b], V Venkatasubramanian[b], L Puigjaner[a]
[a]UPC-Barcelona, Spain
[b]Purdue University, USA

S4-I 125 Thursday 20/9 11:00 – 12:30
EPIC-1: Intensified Hydrodynamics & Structured Environments (IHSE-4)
Aud-11

11:00 839 Single Flow-Through Catalytic Membrane Microchannel Reactor for Intensified Heterogeneous Catalysis: Characterisation and Application to Hydrogenation of Ethyne
T Westermann, T Melin
RWTH Aachen, Germany

11:20 1006 Instabilities of Immiscible Liquid-Liquid Two-Phase Laminar Flow in a Micro Channel
T Matsumoto[a], T Shikata[a], T Takigawa[b], N Ohmura[a]
[a]Kobe University, Japan
[b]Eisai Co Ltd., Japan

11:40 2937 Micro-Scale Liquid-Liquid Separation in a Plate-Type Coalescer
E Kolehmainen, I Turunen
Lappeenranta Univ of Technology, Finland

12:00 3474 Methanol Synthesis Using Microchannel Reactors for Off-Shore Applications
A H Bakhtiary[a], B R Myrstad[b], C P Pfeifer[c], D H Venvik[a], E K X Phan[a], F K Schubert[c], G A Holmen[a]
[a]Norwegian Univ of Science & Tech, Norway
[b]SINTEF, Norway
[c]Forschungszentrum Karlsruhe GmbH, Germany

S4-J 126 Thursday 20/9 11:00 – 12:30
EPIC-1: Multifunctionality (MF-2)
Aud-12

11:00 1264 Hybrid separation process - combination of reactive distillation with membrane
C Buchaly, P Kreis, A Górak
University of Dortmund, Germany

11:20 2085 Determination of the interfacial area of a continuous integrated mixer/separator (CINC) using a chemical reaction method
B Schuur, W J Jansma, J G M Winkelman, H J Heeres
University of Groningen, Netherlands

11:40 1361 Performances comparison of intensified mixers and micromixers
L Falk[a], J-M Commenge[a], S Lomel[b]
[a]CNR-LSGC-Nancy, France
[b]Rhodia, France

12:00 678 Managing impurities in an integrated crystallization system
C Wibowo[a], Y S Cheng[b], K M Ng[b]
[a]ClearWaterBay Technology Inc, USA
[b]Hong Kong Univ of Science & Technology, Hong Kong

S5-Gg 127 Thursday 20/9 10:05 – 10:35
Process & Product Innovation (Food-4b)
5 min oral presentation plus poster
Hall-A1

10:05 4141 Influence of surface structure on the cleanability of surfaces
U Bobe[a], K Sommer[a], U Beck[b], G Reiners[b], B Winzer[c], W Peukert[c]
[a]TU-Munchen, Germany
[b]BAM-Berlin, Germany
[c]University of Erlangen, Germany

10:10 228 Cryogenic freezing of food materials as preparation for crushing
K Eugeney
Kuban State Technological Univ, Russia

10:15 2129 Effect of ozonation on table grapes preservation in cold storage
D Kontoulis, K Katsieris, P Vlachos, M Kornaros
University of Patras, Greece

10:20 1960 Innovation - where is the room for improvement?
C Nellemann
Forskerlink, Denmark

10:25 2289 Effect of Ultrasound as Abiotic Elicitor on the Production of Trans-Resveratrol in Vitis vinifera L.
E Erte A Güvenç B Kunter N Keskin Ü Mehmetoğlu
Ankara University, Turkey

10:30 3860 Enzymatic structural modification of antioxidants for omega-3 oil protection
M B Let[a], Lschultz[a],H Zhang[a], Z Guo[a], C Jacobsen[b], X Xu[a]
[a]Technical University of Denmark
[b]Danish Institute for Fisheries Research, Denmark

S5-Hh 128 Thursday 20/9 10:05 – 10:30
Hygiene, Hygienic Design & Unit Operations (Food-5b)
5 min oral presentation plus poster
Hall-A2

10:05 3095 Yield Optimization In Carrot Juice Production
A Fariña, I Rodrigues, M Henriques, R Saraiva

10:10 3954 Pulsed light as a novel decontamination technology: factors affecting microbial inactivation
A Lasagabaster, I M Marañón

10:15 3964 Heat treatment improvement of dairy products via new continuous Ohmic heating technology by fluid jet
S Ghnimi, N F Malaspina, M Dresch, G Delaplace, J F Maingonnat

10:20 4057 Energy efficient microwave hot-air drying of porous materials
E Holtz, L Ahrné, T H Karlsson, A Rasmuson

S5-Ii 129 Thursday 20/9 10:05 – 10:30
Modern Analysis: Chemical & Multivariate Analysis (Food-6b) – 5 min oral presentation plus poster
Hall-A3

10:05 1415 Application Of Correlation Between Biot And Dincer Numbers For Determining Moisture Transfer During The Air Drying Of Coroba Slices
O Corzo, N Bracho, A Pereira, A Vásquez

10:10 2467 Use of Artificial Neural Network Models for Prediction of Drying rates of Agricultural Products
K Movagharnejad, M Nikzad

10:15 4047 Spectroscopic and sensory characterization of low- and nonfat cream cheeses – relationships and method differences
C M Andersen

10:20 4059 Accelerated shelf-life evaluation of ready-to-eat foods
M Nuin

10:25 4100 Evaluation of glass transition of frozen foods. A benchmark of selected methods using conventional DSC and modulated DSC. Application to selected food samples
A L Bail

S8-F 130 Thursday 20/9 11:00 – 12:30
Chemical Product Design & Engineering - IV (CPD&E - 4)
BV1

11:00 1123 Particle production for controlled drug release
S Nalawade[a], F Picchione[b], L P B M Janssen[b]
[a]University of Twente, Netherlands
[b]University of Groningen, Netherlands

11:18 604 Biocompatible Polymeric Materials Intended for Drug Delivery and Therapeutic Applications
11:36 *S Hvilsted, D A Pedersen, A D Thomsen, I Javakhishvili, M Bednarek*
Technical University of Denmark, Denmark

2281 Biocompatible Metallic Materials For Osteosynthesis Made By Icem – Sa, Romania
A M C Anca, B S Ştefan
Metallurgical Research Institute-Buchrest, Romania

11:54 2304 Anticipation of scale up issues in pharmaceutical development
F L Muller, J M Latimer
AstraZeneca, UK

12:12 2168 Carbon cartridges and their use as a purification step in pharmaceutical API processes
N Iverlund[a], A Parsons[b], F Muller[b]
[a]AstraZeneca, Sweden
[b]AstraZeneca, UK

T3-10 131 Thursday 20/9 11:00 – 12:30
Innovative Process Equipment-Operation Design
Room 16

11:00 1475 Gas dispersion in highly viscous liquids

using a SMX static mixer
T Lang[a], J Hepperle[b], M Piesche[a]
[a]University of Stuttgart, Germany
[b]Bayer Technology Services GmbH, Germany

11:20 3019 Homogeneous particle suspension in an agitated reactor: A comparison between the pitched blade turbine and the Maxblend Impeller
K Takenaka[a], R Yatomi[a], S Morinaga[a], P A Tanguy[b]
[a]Sumitomo Mechanical & Equipment, Japan
[b]URPEI Ecole Politechnique, Canada

11:40 2019 Liquid-liquid mass transfer in square micro-channels
N Di Miceli[a], L Prat[a,b], P Cognet[a,b]
[a]LGC, CNRS/INPT/UPS, France
[b]Université de Toulouse, France

12:00 815 Transport phenomena inside liquid chromatographic columns and CFD modelling based on X-ray CT measurements
F Lottes[a], E-U Astrath[a], W Arlt[a], E H Stenby[b]
[a]Univ of Erlangen-Nurenberg, Germany
[b]Technical University of Denmark, Denmark

132 Thursday 20/9 13:30 – 14:40
Poster Session
Exhibition Area

T2-9P: Crystallization – Poster

685 An insight into interparticle forces and filterability of potassium sulphate crystals precipitated with ethanol and acetone
M Louhi-Kultanen[a], A L Arnalot[b], L Nyström[a], J Kallas[a]
[a]Lappeenranta Univ of Technology, Finland
[b]Acciona Water, Spain

1432 Cellular automata for simulation of crystallization in different mediums
E R Abasheva, E M Koltsova
Mendeleev Univ of Chem Tech, Russia

1734 Crystallization of Ammonium-Perchlorate from Solution of Electrolytically Produced Sodium-Perchlorate in a Pilot- Scale Plant
Ž Andrić
Montenegro

1915 Synthesis of Small Crystals of LTA Zeolites without used Organic Compounds
S Alfaro[a], M A Valenzuela[a], P Bosch[b]
[a]Instituto Politécnico Nacional, Mexico
[b]Universidad Nacional Autónoma de México, Mexico

1928 Correlation of Fluid Atomization and Particle Formation in the SAS Process by Optical Laser Analysis
R Schatz, A Braeuer, A Leipertz, E Schlücker
Univ of Erlangen-Nuremberg, Germany

2192 Material effects on the ammonothermal crystallization of bulk GaN
N Alt[a], E Meissner[b], D Kilian[a], E Schlücker[a]
[a]Univ of Erlangen-Nuremberg, Germany
[b]Fraunhofer Institute Integrated Systems and Device Technology, Germany

2226 Experimental study of different configurations to perform preferential crystallization for enantioseparation
G Ziomek, M P Elsner, A S Morgenstern
Max Planck Institute Magdeburg, Germany

2264 Influence of selected process parameters on attrition intensity in DTM type crystallizers with a jet–pump – a general neural network's approach
K Piotrowski[a], K Pentos[b], M Malasinska[b], A Matynia[b]
[a]Silesian University of Technology, Poland
[b]Wrocław University of Technology, Poland

2736 Controlling of Chaos in the Process of Crystallization of Dibasic Lead Phosphite
M V Cherenkov, E M Koltsova
Mendeleev Univ of Chem Tech Russia

2763 Crystallization of a polymorphic drug in a stirred tank
C Herman, V Gelbgras, V Halloin, B Haut
Université Libre de Bruxelles, Belgium

2871 Process conditions and granulometric properties of crystals
A Sander, J P Kardum
Faculty of Chem Eng & Technology, Croatia

2899 CSD and the kinetic parameters of crystallization of K2SO4
J P Kardum, A Sander, M Kirinčić, M Kalšan
Faculty of Chem Eng & Technology, Croatia

2910 Supersaturation profiles of L-sorbose water solutions in the cooling batch crystallization process
B Wierzbowska[a], J Koralewska[a], K Piotrowski[b], A Matynia[a], K Wawrzyniecki[a]
[a]Wrocław Univ of Technology, Poland
[b]Silesian University of Technology, Poland

3023 Synthesis and Characterization of Hydrotalcite-like Compounds Produced via Hydrothermal Treatment
W N Budhysutanto[a], Y P Diego[a], H J M Kramer[a], M Reedijk[b], A G Talma[b], P J Jansens[a]
[a]Technical University of Delft, Netherlands
[b]Akzo Nobel Chemical Research bv, Netherlands

3757 Solvent Influence on Organic Crystal Agglomeration
E M Ålander, Å C Rasmuson
Royal Institute of Technology - KTH, Sweden

T2-4P: Rheology – Poster

915 Characterization of time dependent behaviour of non fat and full fat stirred yoghurt
A Cancela, R Maceiras, E Álvarez
University of Vigo, Spain

3066 Rheological Study of Phenolic Resol Resins Cure After Gelation
J C Domínguez, M V Alonso, M Oliet, F Rodríguez
Complutense University of Madrid, Spain

3394 Process rheo-kinetics of the bitumen modification by isocyanate-based reactive prepolymer
M J Martín-Alfonso, P Partal, F J Navarro, M García-Morales, C Gallegos
Universidad de Huelva, Spain

T2-6P: Interfacial & Colloidal Phenomena – Poster

219 Using of hydrogen peroxide for increasing of biologically active carbon filter work efficiency
I Kozyatnyk, N Klymenko
Institute of Colloid Chemistry and Chemistry of Water NAS Ukraine, Ukraine

385 Electrical interaction between two long, parallel particles covered by an ion-penetrable charged membrane in oil-water interface
S Tseng[a], L F Cheng [b], J P Hsu[b]
[a]Tamkang University, Taiwan
[b]Natinal Taiwan University, Taiwan

488 The effect of polyacrylamides on the

flocculation and settling behaviour of kaolinite dispersions
M S Nasser and A E James
The University of Manchester, UK

1188 Thin film flow of a liquid down smooth and rough surfaces
L B Press, D Dulska, S Woziwodzki
Poznan University of Technology, Poland

1204 Sedimentation in Micellar Solutions of Tetradecyltrimethyl-ammonium Bromide
J Rozanski, L B Press
Poznan University of Technology, Poland

2555 Phase Inversion in Liquid – liquid Batch Stirred system
M Amouei, P K Parsi, M A Moosavian, A A Davoodi
Uiniversity of Tehran, Iran

2596 Study on effective parameters on adhesion in segmented polyurethanes
M Amrollahi, G M M Sadeghi, M Haghshenas
Amirkabir University of Technology, Iran

4053 A Dynamics Behavior of Two-Dimensional Colloidal Aggregates using Discrete Element Method (DEM)
T Kangsadan, S Promkotra
King Mongkut's Institute of Technology North Bangkok, Thailand

T4-10P: Tools Integration - CAPE Methods & Tools – Poster

215 Nonlinear Modeling Of A Reactor-exchanger By Using Narx Neural Networks
Y Chetouani
Université de Rouen, France

1238 Design of Flexible Utility Systems
D Zheng, J K Kim, W Kwapinski, S Perry, R Smith
University of Manchester, UK

2083 Design of experiments and empirical models for up to date burners design for process industries
P Belohradsky, V Kermes, P Stehlik
Brno University of Technology VUT, Czech Republic

2287 On the application of model reduction techniques for dynamic optimization of chemical plants operation
B Dorneanu[a], C S Bildea[a], J Grievink[a], V Jovan[b]
[a]Delft University of Technology, Netherlands
[b]Jozef Stefan Institute, Slovenia

2829 Modelling and optimization of single and multi-layer pressure swing adsorption system
D Nikolic[a], A Giovanoglou[b], M C Georgiadis[c], E S Kikkinides[a]
[a]University of Western Macedonia, Greece
[b]Process Systems Enterprise, Greece
[c]Imperial College London, UK

3362 CAPE-OPEN – Aspen Plus based mathematical modeling for integrated simulation of an entrained bed gasifier
M Pérez-Fortes, A Bojarski, G Kopanos, S Ferrer-Nadal, N Mitta, C A Pinilla, J M Nougués, E Velo, L Puigjaner
UPC-Barcelona, Spain

3437 Making value with order management for agent based systems
M Badell, G Kopanos, J M Lainez, L Puigjaner
UPC-Barcelona, Spain

3752 Comparison of liquid discharge from a tank through circular and irregular shape orifices
M Dziubiński, Ł Przelazły
Technical University of Lodz, Poland

T5-P: Integration of Life Sciences & Engineering - Poster

237 Enzymatic synthesis of lactulose from lactose and fructose by commercial β_ Galactosidase from Klyveromyces lactis
F Zokaee A, H Fattahi M, B Bonakdarpoor, S A R Hashemi
Amirkabir University of Technology, Iran

289 Varied Properties of Hepatitis-Delta Virus-like Particles Produced by Baculovirus-transduced Mammalian Cells
Y Chiang[a], J Wu[b], K Wang[a], Y Hu[a]
[a]National Tsing Hua University, Taiwan,
[b]National Yang Ming University, Taiwan

333 Characterization of a biosurfactant produced by psuedomonas fluorescens
M Abouseoud, A Yataguene, R Maachi, A Amrane
Centre Universitaire Yahia Fares De Medea , Algeria

838 Measurement of the activated sludge acclimation in a bi-substrate environment
F López, A Abad, M J Palomo, J Navarro-Laboulais
UPV-EPSA, Spain

854 Kinetics of metabolism during growth of the hydrogen producing bacterium Ruminococcus albus on glucose
Ntaikou I, Gavala H N and Lyberatos G
University of Patras, Greece

902 Biodesulfurization of DBT in model oil by resting cell of Pseudomonas putida CECT5279. process enhancement
R A del Aguila, K Boltes, P Leton, A Rodriguez, R Rosal, J A Perdigon and E Garcia-Calvo
University of Alcala, Spain

1086 Product Inhibition of Cellulases during Enzymatic Hydrolysis of the Pre-Treated Ligno-Cellulose
P Andrić, K Dam-Johansen, P A Jensen, A Meyer
Technical University of Denmark, Denmark

1273 Membrane-Attached Biofilm Reactor Behavior Under Different Flow Velocity for the Treatment of Synthetic Waste Water
M González-Brambila, F López-Isunza
UAM-Iztapalapa, Mexico

1349 Dynamic modeling of the acrylic acid synthesis from renewable resources
B H Lunelli, R Filho, E C V de Toledo
UNICAMP, Brazil

1649 Characterization of an Extracellular lipase from Yarrowia lipolytica
A I S Brígida[a], P F Amaral[a], L R Gonçalves[b], M A. Z Coelho[a]
[a]UFRJ/EQ, Brazil
[b]Universidade Federal do Ceará, Brazil

1669 Development of a Horseradish peroxidase-based Flow Injection Amperometric Biosensor for the Determination of Phenolic Compounds
S Korkut, M Y Can, E Erhan
Gebze Institute of Technology, Turkey

1795 Glucose Uptake in Electrically Stimulated Cultures of Saccharomyces cerevisiae
O Q F Araújo, A A C Oliveira, C O Torres, M H Rocha-Leão, I C P Margarit, M A Z Coelho
UFRJ/EQ, Brazil

1797 Fructooligosaccharides production from sucrose by Aspergillus sp. N74 in a hybrid

bioreactor
S Oscar, G Felipe, G Diana, SEdelberto, C Luis
Universidad Nacional de Colombia, Colombia

1896 Production of 1,3-propanediol using Klebsiella oxytoca NRTL B-199 growing cells: Medium composition optimization using Taguchi method
Galdeano C, Zazo M, Santos V E, Garcia J L, Garcia-Ochoa F
Universidad Complutense de Madrid, Spain

1902 Oxygen transfer in small scale animal cell culture reactors: comparison of two reactors by experimental and numerical methods
N Barbouche, E Guedon, A Marc, E Olmos
ENSAIA-INPL, France
CNRS, France

1908 Biodesulfurization of Alkylated Dibenzothiophenes using Whole Cells of Pseudomonas putida CECT 5279: Comparison of Substrate Consumption Rates
A B Camara, J Calzada, A Alcon, V E Santos, F Garcia-Ochoa
Universidad Complutense de Madrid, Spain

1945 Oxygen mass transfer to emulsions in bubble column contactor
D Gómez-Díaz[a], N Gómes[b], J A Teixeira I Belo[b]
[a]Univ of Santiago de Compostela, Spain
[b]University of Minho, Portugal

1988 Continuous enzymatic epoxidation of methyl oleate-
Process development and –optimisation
F Pontzen, D Herzog, D H Mueller, M A Liauw, L Greiner
RWTH Aachen University, Germany

2003 - Enzymatic isolation of β-glucan from brewer's yeast Saccharomyces cerevisiae
L Hua[a], M Wümpelmann[b], J Villadsen[a], A S Meyer[a]
[a]Technical University of Denmark, Denmark
[b]Novozymes A/S, Denmark

2205 Oxygen transfer, mixing time and gas holdup characterization in a hybrid bioreactor
S Oscar, G Felipe, G Diana, S Edelberto, C Luis
Universidad Nacional de Colombia, Colombia

2300 Statistical optimization of lipase catalyzed enantioselective production of 1-phenyl 1-propanol by response surface methodology
A Soyer, E Bayraktar, Ü Mehmetoglu
Ankara University, Turkey

2404 Polymerization of D,L-lactide and glycolide in supercritical carbon dioxide and in bulk
R Mazarro , A Lucas , I Gracia , J F Rodríguez
University of Castilla La Mancha, Spain

2454 Coupling of Pervaporation system with Fermentation Process
S Eslami, A Aroujalian, B Bonakdarpour, A Raeesi
Amirkabir University, Iran

3137 Development of Continuous Culture Microbioreactors
D Schäpper, KV Gernaey, A E Lantz, S Stocks, N Szita
Technical University of Denmark, Denmark
Novozymes A/S, Denmark

3168 Development of large scale dynamic metabolic model of Penicillium chrysogenum using linlog kinetics
I E Nikerel, R M P Blankestijn, W M Gulik, W A Winden, P J T Verheijen, J J Heijnen
Delft University of Technology, Netherlands

3468 Optimization of bioreactor performance for the oxidation of ferrous sulfate using Taguchi approach
S M Mousavi, A Jafari, S Yaghmaei, M Vossoughi, I Turunen
Sharif University of Technology, Iran

3279 Using Lie algebra to assess the parameters identifiability and to perform experimental design
F P Davidescu, S B Jørgensen
Technical University of Denmark, Denmark

3336 Investigating the interactions between nonionizing radiation and living system by studying of the dielectric properties of phantom materials
D Acierno, A A Barba, M d'Amore
Iniversity of Naples "Federico II", Italy
University of Salerno, Italy

3607 Three-dimensional measurements in the baffle region of a turbulently stirred tank
C Galletti, S Pintus, E Brunazzi
University of Pisa, Italy

3800 Toxicity of nanoparticles on mammalian cells
B Han, M N Karim
Texas Tech University, USA

3957 Bubble formation in a forced loop reactor
A Fadavi
Ilam University, Islamic Republic of Iran

4153 Analysis of the microbial membrane bioreactor working at the reagents separation
A T Holownia
Wroclaw University of Technology, Poland

4154 Thermolysine adsorption on membrane at parallel flow of retantate
A T Holownia, A Noworyta
Wroclaw University of Technology, Poland

S4-P-2: EPIC-1: Poster Session – II

74 Intesification of the commercial run of deriving of isobutylene
E Mammadov, R Kasimov, R Melikov, A Aliyev
National Academy of Sciences of Azerbaijan, Azerbaijan

263 Optimal Heat Exchanger Network Synthesis Including Heat Transfer Equipment Design
M A S S Ravagnani[a], J A Caballero[b]
[a]State University of Máringá, Brazil
[b]Universidad de Alicante, Spain

276 Biodiesel by Catalytic Distillation – Towards Sustainable Fuels
A A Kiss, A C Dimian, G Rothenberg
University of Amsterdam, Netherlands

908 Multi-scale solids processing in Pharmaceuticals, batch to continuous
A T Sheikhzeinoddin, B P N Sharratt
The University of Manchester, UK

958 Distillation Intensification by Simultaneously Enhancing both Mass and Heat Transfers
B G Rong, I Turunen
Lappeenranta Univ of Technology, Finland

1337 Design of a Minimum Energy/CO2 Emissions Distillation Column for Separation of Close Boiling Mixtures
A Rijke[a], Ž Olujić[a], L Sun[b], M Gadalla[c], P J Jansens[a]
[a]Delft University of Technology, Netherlands
[b]China University of Petroleum, China

[c]*Universitat Rovira i Virgili, Spain*

1322 1322 - Ecological assessment of small-sized bio ethanol plants powered by renewable energy
M Narodoslawsky
TU-Graz, Austria

1330 Process intensification in the esterification of rosin and glycerol
M Ladero[a], M Gracia[a], P Alverero, F Trujillo[b], F Gracia[a]
[a]*Complutense University-Madrid, Spain*
[b]*La Unión Resinera Española S.A. (LURESA), Spain*

2124 Process Intensification for Optimal Retrofit of a Multicomponent Distillation Plant -A Real Industrial Case Study
M Errico[a], B Rong[b], G Tola[a], I Turunen[b]
[a]*Universita' degli Studi di Cagliari, Italy*
[b]*Lappeenranta University of Technology, Finland*

2182 The production of Dimethyl Ether by catalytic distillation: A combined modeling and experimental approach
E Brunazzi[a], M D Stanislao[b], A Malandrino[b], C Pirovano[b]
[a]*University of Pisa, Italy*
[b]*ENI S.p.A., Italy*

2330 CO2 removal from power plant flue gas: comparison of different membrane gas separation configurations
F Scura[a], G Barbieri[b], E Drioli[b]
[a]*University of Calabria, Italy*
[b]*Institute on Membrane Technology, Italy*

2867 Possibilities of process intensification using microwaves applied to catalytic microreactors
U Kunz
Clausthal University of Technology, Germany

2890 Interactions between rate changes and reactive distillation performances
A Farid[a], S Goto[b], K Kitagawa[b]
[a]*Queen's University of Belfast, UK*
[b]*Nagoya University, Japan*

2957 Wastewater minimiztation using methods of process integration - a case study
I Dejanovic, L Matijasevic
University of Zagreb, Croatia

2961 Technologies Comparison for Separation of CO2 and H2S from Oil/Gas within the Reservoir
X Tang[a], E Meuleman[b], R Vaart[c], J Gross[a], P Jansens[a]
[a]*TU Delft, Netherlands*
[b]*TNO, Netherlands*
[c]*Research & Design Engineer, Netherlands*

3053 Production of sec-butyl alcohol by olefin hydration – A candidate for process intensification?
B Pfeuffer, D Petre, U Kunz, U Hoffmann, T Turek, D Höll
Clausthal Univ of Technology, Germany

3140 Task-based design techniques for crystallization process
R Lakerveld, H J M Kramer, P J Jansens, J Grievink
Delft University of Technology, Netherlands

3212 Basic criteria for microreactor selection
D Kirschneck, G Tekautz
Microinnova Engineering GmbH, Austria

3294 Synthesis of heat-integrated distillation sequences in non-conventional processes
F J M Neves[a], N M C Oliveira[a], F P Mendes[b]
[a]*University of Coimbra, Portugal*
[b]*Químicos Industriais, S.A., Portugal*

3444 Retrofit of Crude Distillation Unit Using Process Simulation and Process Integration
M M Shanazari, F Shahraki, M Khorram
University of Sistan and Baluchestan, Iran

S5-P-2: Innovations in Food Technology – Poster Session 2

329 The isomerization kinetics of lactose to lactulose in the presence of sodium aluminate
A Hashemi , F Z Ashtiani
Amirkabir university of Technology, Iran

597 Homogenisation of dairy products at high fat content using the valve technology
A K Köhler, B F Aguilar, C A Hensel, D K Schubert, E H P Schuchmann
University of Karlsruhe (TH), Germany

647 A New Process for Deproteinization of Chitin from Shrimp Head waste
M Mizani[a], B M Aminlari[b]
[a]*Azad University, Iran*
[b]*Shiraz University, Iran*

761 Apple Juice Clarification: Identification Of Pectin Residues By Immunogold Labeling
V Sorrivas[b], D B Genovese[a], J E Lozano[a]
[a]*PLAPIQUI (UNS-CONICET), Argentina*
[b]*CRIBABB, Argentina*

888 Drying Of Alcohol Precipitated Pectin Gel With Low Pressure Superheated Alcohol Vapor
M J Urbicain, D B Genovese, J E Lozano
PLAPIQUI (UNS-CONICET), Argentina

1515 Predicting The Moisture And Mass Loss Of Mamey Strips During Osmotic Dehydration
N Bracho,O Corzo, O Ramírez
Universidad de Oriente, Venezuela

2530 Effect of whey pretreatments on lactose recovery
Z Akbari[a], F Zokaee[b], T Ghomashchi[a]
[a]*Tehran University, Iran*
[b]*Amirkabir University of Technology, Iran*

2603 Inactivation of microorganisms and pathogens by an alternating high pressure treatment
N Ebel, B Frey, J Brandmayer, A Schopper, M Herrmann, E Schlücker
Univ of Erlangen-Nuremberg, Germany

2933 Investigation Of Solvent Extraction Kinetics Of Antioxidants From Grape Marc
G Spigno, L Tramelli, D M D Faveri
Università Cattolica Sacro Cuore, Italy

2960 A Novel Enzymatic Maceration Treatment To Enhance The Phenolic Content Of Apple Juice
M Pinelo, A S Meyer
Technical University of Denmark, Denmark

3576 An experimental study of various whey proteins concentrates addition effects on some textural and physical properties of direct expanded maize extrudates
M Brncic[a], B Tripalo[a], S R Brncic[a], D Semenski[b], D Jezek[a], T Bosiljkov[a]
[a]*University of Zagreb, Croatia*
[b]*University of Zagreb, Croatia*

3809 Purine nucleosides and Cytidine uptake in Lactococcus lactis share a common transporter of the ABC type
J Martinussen
Technical University of Denmark, Denmark

3862 Comparative fatty acid content of sunflower seeds of genotypes Romanian inbred lines using Artificial Neural Networks

D Bratfalean, D Bratfalean, MV Cristea, D F Irimie, P S Agachi
Babes Bolyai University, Romania

3891 Reduction of Campylobacter on Chicken Carcasses by SonoSteam® Treatment
D Hansen, B S Larsen
FORCE Technology, Denmark

3946 Infusion pasteurization of skim milk: Effects of different time-temperature combinations
A B Hougaard, M Hammershøj, R Ipsena
University of Copenhagen, Denmark

3948 Analysis of PurR from Lactococcus lactis
C B Jendresen, M Kilstrup, J Martinussen
Technical University of Denmark, Denmark

3952 Salting dynamics for anchovy (Engraulis anchoita) with salt replacers
R L Holgado, M A Zubiaga, I P Díez, M I Salaverri, I G Palacios
AZTI-TECNALIA, Spain

4032 Drying of rice paddy using a microwave vacuum dryer
K Cheenkachorn, C Cheepsathit, E Pattala
King Mongkut's University of Technology North Bangkok, Thailand

4046 Production of Beverages and Curds made from Peas
G Zweytick, E Berghofer
University of Natural Resources and Applied Life Sciences, Austria

4067 Classification of Penicillium fungi
L H Clemmensen, M E Hansen, B K Ersbøll
Technical University of Denmark, Denmark

4096 Shrimp shells: A ressource
By Mr Jørgen Risum
Technical University of Denmark, Denmark

4102 Wine Dilution Affects the Reliability of Tannin Analysis by Protein Precipitation
J S Jensen, H H M Werge, M Egebo, A S Meyer
Technical University of Denmark, Denmark

4107 Does extra-cellular DNA play a role in biofilm formation of Listeria monocytogenes EGDe?
M Harmsen
University of Copenhagen, Denmark

4145 Textural Properties of Amylomaltase Modified Starches compared to Gelatine
M R Hansen
Copenhagen University, Denmark

4146 Kinetics of microbial and biochemical change of chocolate during storage
J P Pandey
B Pant University of Agric, & Tech., India

4147 Enzymatic synthesis of lipophilic flavonoid derivatives in organic solvents containing ionic liquids
Yifan Hu
Technical University of Denmark, Denmark

T2-4 133 Thursday 20/9 14:40 – 16:40
Rheology
Room 17

14:40 613 Effect of Reactor Conditions and Catalyst Design on Rheological Behavior of Polymers Produced in Catalytic Olefin Polymerization FBRs
P Pladis, V Kanellopoulos, C Chatzidoukas, C Kiparissides
AUT 6 CPERI/CERTH, Greece

15:00 2778 The Prediction of Paint Properties from Rheological Data
J Knoetz & P Moolman
University of Stellenbosch, South Africa

15:20 1191 Experimental analysis of thermal conductivity of carboxymethylcellulose sodium salt aqueous solutions in co-axial cylinder system
L Broniarz-Press[a], K Pralat[b], K W Pyc[c]
[a]Poznan University of Technology, Poland
[b]State School, Poland
[c]Lodz University of Technology, Poland

15:40 2473 Steady bubble rise and deformation in Newtonian and Bingham fluids and conditions for their entrapment
J Tsamopoulos, Y Dimakopoulos, N Chatzidai, G Karapetsas, M Pavlidis
University of Patras, Greece

16:00 3404 Linear viscoelastic retardation phenomena in selected polysaccharides system
M Grzesik[a], P Ptaszek[b], A Ptaszek[b]
Polish Academy of Sciences, Poland
University fo Agriculture, Poland

16:20 2775 Analytical Solution of Viscous Dissipation Effects of SPTT Viscoelastic Fluids for Purely Tangential Annuli non-Isothermal Flow
S H Hashemabadi, S M Mirnajafizadeh
Iran Univ of Science & Tecnology, Iran

T2-13c 134 Thursday 20/9 14:40 – 16:40
Catalysis – III
Room 18

14:40 3688 Phase Transfer Catalysis-Continuous Contact
T Sankarshana, J S Murthy, A A kumar
College of Technology, India

15:00 417 Catalytic wet air oxidation of aqueous solution of phenol over Pt/CNF catalysts
C Díaz, G Ovejero, A Rodríguez, J García
Complutense University of Madrid, Spain

15:20 247 Oxidative dehydrogenation of propane under steady-state and transient regimes over alumina-supported isopolyanionic catalysts
S Paul, M F Kaezar, J G Eon
Unite de Catalyse et de Chemie du Solide, France

15.40 4070 Methane catalytic decomposition over cu-ni-al catalyst: reaction rate and catalyst regeneration
T E Machado, M A Lansarin, O W P Lopez
UFRGS, Brazil

16:00 926 Effect of tetralol and tetralone in the tetralin oxidation with copper and chromium heterogeneous catalysts
O C Navarro[a], R G Tailleur[b], A C Canos[a]
[a]CSIC, Spain
[b]Texas A&M University, USA

T3-7 135 Thursday 20/9 14:40 – 16:40
Integrated Methodologies for Process Development
Room 16

14:40 2715 A semi-batch (on-line) method for biokinetics determination in an enhanced biological phosphorus removal system
E Vaiopoulou, Alexander Aivasidis
Demokritos University of Thrace, Greece

15:00 3334 Optimal biorefinery resource utilization by combining process and economic modeling
N Sammons Jr., W Yuan, M R Eden, B Aksoy, H T Cullinan
Auburn University, USA

15:20 3646 Designing waste minimization alternatives for batch processes using an intelligent simulation-optimization framework
I Halim, R Srinivasan
National Univ of Singapore, Singapore

15:40 1552 Design of sustainable chemical

processes:Systematic retrofit analysis and generation & evaluation of alternatives
A Carvalho, C Vázquez, R Gani, H Matos
Technical University of Denmark, Denmark

16:00 2370 Life cycle assessment technique coupled with simulation for enhanced sustainability of phosphoric acid production
A D Bojarski[a], L Gimenez Esteller[b], A Espuña[a], L Puigjaner[a]
[a]UPC-Barcelona, Spain
[b]University Rovira i Virgili, Spain

T4-K 136 Thursday 20/9 14:40 – 16:40
Theme-4 Keynote Session (keynotes K3, K4 & K5)
Hall-A1

14:40 4076 Knowledge engineering in CAPE systems - Can chemical engineers finally get around programming ?
L von Wedel
AIXCAPE, Germany

15:20 4093 Drinking from a Fire Hose: Cyberinfrastructure Methods and Tools for Managing Information Overload and Complex Decision-Making in Molecular Products Design and Engineering
V Venkatasubramanian,
Purdue University, USA

16:00 4092 Energy Systems Engineering – an integrated approach for the energy systems of the future
E N Pistikopoulos
Imperial College London, UK

T5-3 137 Thursday 20/9 14:40 – 16:40
Bio-transformation in the Laboratory and in Large Scale Production
Hall A2

14:40 1865 Micro-Enzyme-Membrane Reactor – a tool for assessing enzyme activity and stability under continuous reaction conditions
D H Mueller, M A Liauw, W Hempelmann, L Greiner
RWTH Aachen, Germany

15:00 2773 Steps towards the rational design of an immobilized biocatalyst with improved process stability
I Dib[a], J Nahalka[b], B Nidetzky[c]
[a]Applied Biocatalysis Research Center, Austria
[b]Slovak Academy of Sciences, Slovakia
[c]TU-Graz, Austria

15:20 1647 Evaluation of mass transfer enhancement in lipase production by Yarrowia lipolytica in a multiphase system
P Amaral[a], M Martins[a], I Marrucho[b], M R Leão[b], J Coutinh[b], MA Coelho[a]
[a]UFRJ/EQ, Brazil
[b]U niversidad de Aveiro, Portugal

15:40 3022 Cell array preparation in flow-type microchip by using photoresponsive polymer substrate
J Edahiro[a], K Sumaru[a], Y Tada[b], S Sugiura[a], T Takagi[a], T Shinbo[a], Y Yoshimi[b], T Kanamori[a]
[a]AIST, Japan
[b]Shibaura Institute of Technology, Japan

16:00 2835 Enzymatic production of lactobionic acid: From laboratory to pilot scale
M Nordkvist[a], L Hua[b], P M Nielsen[c], J Villadsen[b]
[a]ISO-MIX A/S, Denmark
[b]Technical University of Denmark, Denmark
[c]Novozymes A/S, Denmark

16:20 1645 Saccharomyces cerevisiae Morphology under Hyperbaric Gases
M A Z Coelho[a], J A P Coutinho[b], M Mota[b], E C Ferreira[c], I Belo
[a]UFRJ/EQ, Brazil
[b]Universidad de Aveiro, Portugal
[c]UNIVERSITY OF Minho, Portugal

S4-K 138 Thursday 20/9 14:40 – 16:40
EPIC-1: New Concepts (NC)
Room 19

14:40 2308 Methodology for process intensification applied to the scale-up of microreactors
E Kolehmainen, B-G Rong, I Turunen
Lappeenranta Univ of Technology, Finland

15:00 2567 Selectivity enhancement of microencapsulated enzymes with permselective shells
E E Barth, A Ufer, D W Agar
University of Dortmund, Germany

15:20 695 Stripping of acetone from isopropanol solutions with mesh and membrane gas-liquid contactors
X Sun, A Gavriilidis
University College London, UK

15:40 1726 Basic parameter study for the separation of a isopropanol-water mixture by using FricDiff technology
A Selvi[a], B Breure[b], J Gross[a], J De Graauw[a], P. J. Jansens[a]
[a]Delft Univ of Technology, Netherlands
[b]Eindhoven Univ of Technology, Netherlands

16:00 3463 Mass-production of miniaturised microstructured fuel processors for distributed energy generation
G Kolb, Y Men, J Schürer, D Tiemann, M Wichert, R Zapf, V Hessel
Institut fur Mikrotechnik Mainz GmbH, Germany

16:20 1725 Energy optimization of corn-based bio-ethanol plants
A Peschel[a], R Karuppiah[a], M Martín[b], I E Grossmann[a], L Zullo[c], W Martinson[c]
[a]Carnegie-Mellon University, USA
[b]University of Salamanca, Spain
[c]Cargill, USA

S4-L 139 Thursday 20/9 14:40 – 16:40
EPIC-1: Multifunctionality (MF-3)
Room 20

14:40 2452 Assessment of coupling chromatography and crystallization for productivity enhancement
G Ziomek[a], M P Elsner[a], M Kaspereit[a], D Antos[b], A Seidel- Morgenstern[a]
[a]Max Planck Institute Magdeburg, Germany
[b]Rzeszow University of Technology, Poland

15:00 2927 Continuous reactive chromatography under non-isothermal conditions
T Sainio[a], L Zhang[b], M Kaspereit[b], A Kienle[b], A Seidel–Morgenstern[b]
[a]Lappeenranta Univ of Technology, Finland
[b]Max Planck Institute Magdeburg, Germany

15:20 1905 Computer aided process design of affinity membrane adsorbers
P van Beijeren[a], P Kreis[a], M Mutter[b], S Sommerfeld[b], W Bäcker[b], A Górak[a]
[a]University of Dortmund, Germany
[b]Bayer Technology Services, GmbH, Germany

15:40 3744 Microreactors on production scale: A technical and economical status report for pharmaceutical applications
D Kirschneck
Microinnova Engineering GmbH, Austria

16:00 325 Fischer-Tropsch synthesis in novel monolith loop reactor
R Güttel, U Kunz, T Turek
Clausthal University of Technology, Germany

S5-J 140 Thursday 20/9 14:40 – 16:40
Keynote lecture (LMC Congress/Food Symposium)
Hall-A3

14:40 Innovations in food fermentations and safety
Wilhelm M de Vos
Wageningen & Helsinki University, NL

15:10 Advanced fish processing methods. Revolution or evoluation?
Hordur Arnarson
Marel, Iceland

15:40 Why PAT is needed to achieve quality?
Rasmus Bro
Copenhagen University, DK

16:10 Overview of the Symposium
Hans Elbek
Danisco, DK

S8-G 141 Thursday 20/9 14:40 – 16:40
Chemical Product Design & Engineering - V (CPD&E - 5)
BV1

14:40 1846 Concept Design of a chewing gum that does not foul the streets
N Nikolic[a], S V Pelt[a], H Webers[a], G J Harmsen[b]
[a]Delft Univ of Technology, Netherlands
[b]Rijks Universiteit Groningen, Netherlands

15:00 2824 Fluidized bed spray granulation – From process understanding to modelling of nucleation and dust integration
G Grünewald, A Dinkova, M Kind
Technical University of Karlsruhe, Germany

15:20 532 Scale-up of the top-spray fluidised bed coating process in terms of thermodynamics and spray conditions
P D Hede[a], P Bach[b] A D Jensen[a]
[a]Technical University of Denmark, Denmark
[b]Novozymes A/S, Denmark

15:40 1180 High-pressure spray microcapsules for the control of biofouling zebra mussels
R Costa[a], R Schatz[b], E Schlücker[b], D Aldridge[a], G D Moggridge[a]
[a]University of Cambridge, UK
[b]Univ of Erlangen-Nuremberg, Germany

16:00 2677 Chemical modifications on Curaua Fibres (*Ananas erectifolius*)
A A L F S d´Almeida, B V M A Calado, C J R M d´Almeida, D D W Barreto
UFRJ/EQ, Brazil

142 Thursday 20/9 16:45 – 17:30
Closing Session (PSE Poster Awards, EFCe Student Mobility Awards, Danisco Award, ….Close)
Auditorium 10-11-12

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- Crystallization Process Development: From Solubility to Optimum Process - a one-day workshop on 21 September 2007 by Professor Ka M Ng (Hong Kong University of Science & Technology) and Dr. Christianto Wibow (ClearWaterBay Technology, Inc.), in collaboration with EURECHA and CAPEC. The workshop also takes place at CAPEC, Department of Chemical Engineering, DTU, Lyngby.

- Research Trends in Food - Towards 2030 - a one-day workshop on 21 September 2007 at DTU, Kgs. Lyngby given by Prof Alan Friis and organized by the FOOD Graduate School.

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