



10th International
Chemical and Biological
Engineering Conference

› BRAGA PORTUGAL
4-6 SEPTEMBER '08 ›

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INTRODUCTION

The 10th International Chemical and Biological Engineering Conference CHEMPOR 2008 held in Braga, Portugal, between September 4th and 6th, 2008, is jointly organized by the Department of Biological Engineering of the University of Minho, the “Ordem dos Engenheiros”, and the IBB - Institute for Biotechnology and Bioengineering with the usual support of the “Sociedade Portuguesa de Química” and, by the first time, of the “Sociedade Portuguesa de Biotecnologia”.

The CHEMPOR series traditionally brings together both young and established researchers and end users to discuss recent developments in different areas of Chemical Engineering. The scope of this edition is broadening out by including the Biological Engineering research. One of the major core areas of the conference program is life quality, due to the importance that Chemical and Biological Engineering plays in this area. “Integration of Life Sciences & Engineering” and “Sustainable Process-Product Development through Green Chemistry” are two of the leading themes with papers addressing such important issues. This is complemented with additional leading themes including “Advancing the Chemical and Biological Engineering Fundamentals”, “Multi-Scale and/or Multi-Disciplinary Approach to Process-Product Innovation”, “Systematic Methods and Tools for Managing the Complexity”, and “Educating Chemical and Biological Engineers for Coming Challenges”.

The program includes 516 extended abstracts, consisting of 7 invited lecturers, 15 keynote, 105 short oral presentations given in 5 parallel sessions, along with 6 slots for viewing 389 poster presentations.

We welcome you in Braga, a city located in the province of Minho, in the north of Portugal, displaying a Baroque splendour rarely seen elsewhere. On behalf of the Scientific and Organizing Committees we wish you that together with an interesting reading, the scientific program and the social moments organized will be memorable for all.



Manuel Mota
Chairman of the Scientific Committee



Eugénio Ferreira
Chairman of the Organizing Committee

COMMITTEE MEMBERS

HONOR COMMITTEE:

Under the high Patronage of his Excellency the President of the Portuguese Republic, Prof. Aníbal Cavaco Silva.

Members:

Ministro da Ciência, Tecnologia e Ensino Superior, Prof. Doutor José Mariano Gago
Secretário de Estado Adjunto, da Indústria e da Inovação, Prof. Doutor António Castro Guerra
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J. Lema (Univ. Santiago de Compostela)	L. Sousa Lobo (UNL)
F. Lemos (IST-UTL)	J. A. Teixeira (Univ. Minho)
L. Q. Lobo (Univ. Coimbra)	

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I. Rocha (Univ. Minho)

L. Rodrigues (Univ. Minho)

T. Tavares (Univ. Minho)

A. Venâncio (Univ. Minho)

A. Vicente (Univ. Minho)

INVITED LECTURES

LONG TERM ACHIEVEMENT LECTURE:



T. Reg. Bott

Chemical Engineering Department, University of Birmingham, UK

Meeting the Challenge & Biofouling Control in Cooling Water

INVITED LECTURERS:



James Clark

Department of Chemistry, The University of York, UK

Green Chemistry and the Biorefinery



Edward Cussler

Department of Chemical Engineering and Materials Science, University of Minnesota, USA

Adding Value to Chemical Products



Charles Cooney

Department of Chemical Engineering, Massachusetts Institute of Technology, USA

Innovation at Interfaces



Rafiqul Gani

Department of Chemical and Biochemical Engineering, Technical University of Denmark

A process systems engineering approach for managing the complexity



Ka Ming Ng

Department of Chemical Engineering, Hong Kong University of Science and Technology, Hong Kong

Development of Crystallization Processes for Separating Multicomponent Mixtures



Sebastião Fayo de Azevedo

Department of Chemical Engineering, University of Porto, Portugal

Educating Chemical Engineers for coming challenges

SPONSORS & MEDIA

SPONSORS



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Fundação para a Ciência e a Tecnologia
MINISTÉRIO DA CIÊNCIA, TECNOLOGIA E ENSINO SUPERIOR



ORGANISATION FOR THE
PROHIBITION OF CHEMICAL WEAPONS



grupo Portucel Soporcel



MEDIA PARTNERS



VENUE

CHEMPOR 2008 will be held at the University's Campus of Gualtar, 2 Km east of Braga city center.

BRAGA



Braga, the capital of the province of Minho, originally named *Bracara Augusta*, was established as a trade centre to permit fruitful commercial and industrial exchange with the Roman Empire. Over the centuries which followed Braga adapted to new invasions by Suebics, Visigoths and Arabs before eventually

becoming the "city of archbishops" recognized as a religious and cultural centre with a rich and diverse heritage. In modern times the city expanded contributing to the important industrial region which now generates much of the country's wealth. The historical background of the city and the province of Minho contribute to a rich tapestry which offers modern tourists a surprising variety of activities, from stimulating visits to the many museums, monuments, castles and palaces, gastronomic exploration of the characteristic Portuguese cuisine or to the discovery of the natural parks of Gerês to the east or Soajo to the north.

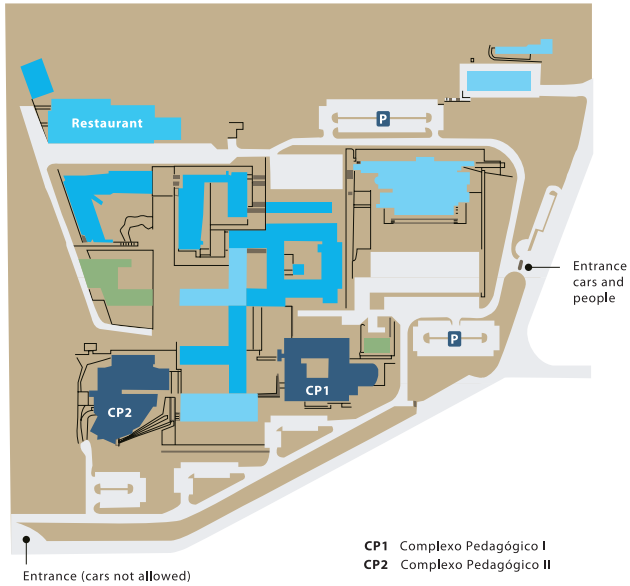
THE UNIVERSITY OF MINHO



The University of Minho, founded in 1973, is one of the then named "New Universities" that, at that time, deeply changed the landscape of higher education in Portugal. Located in the region of Minho, known for its significant economic activity and by the youth of its population, University of Minho has played the role of development agent in the region. The level of the scientific, technological and cultural activity of the University has granted its international recognition.

FACILITIES

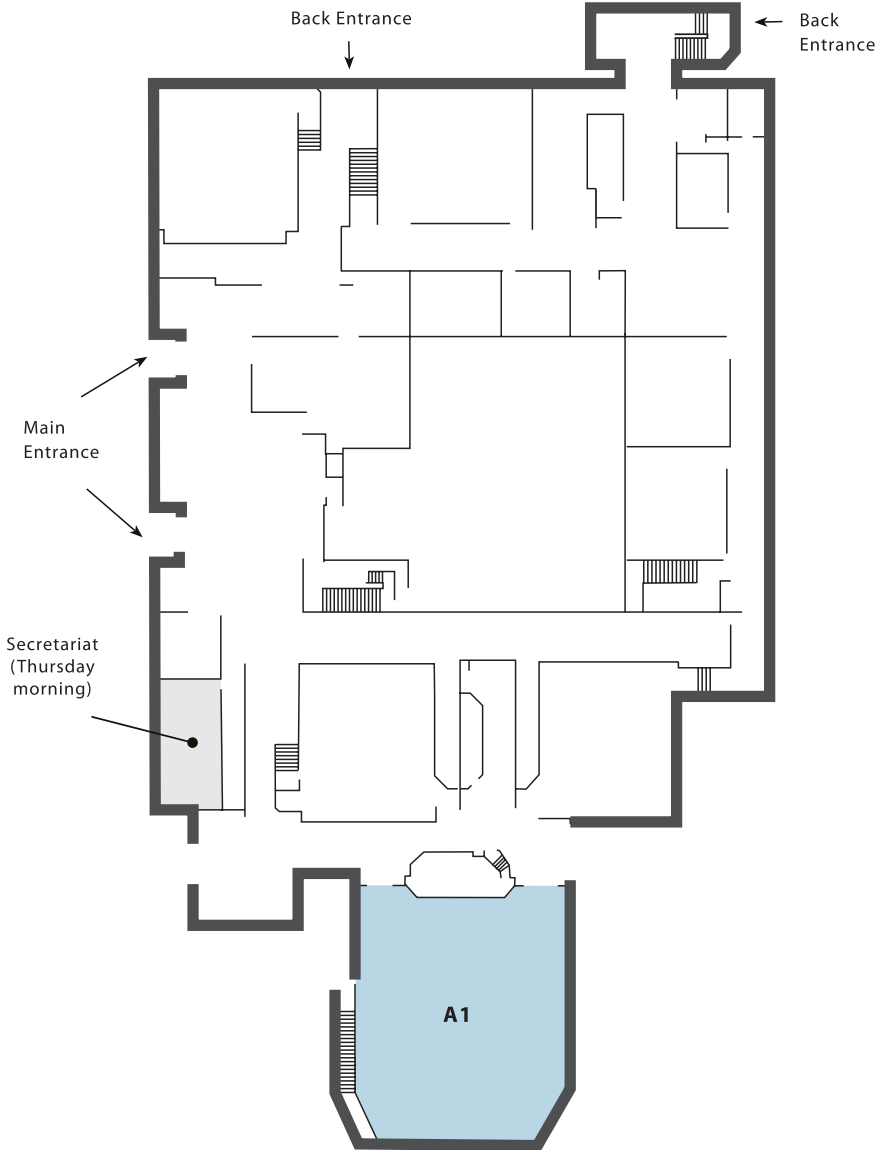
Universidade do Minho | Campus de Gualtar



The event will be located mainly in the building “Complexo Pedagógico 2” – CP2 (photos).



CP1





REGISTRATION DESK

The registration desk is located on the entrance hall of the building CP2. The opening hours are 8:30 - 18:00. In the morning of September 4, the registration will be located in the building CP1 near Auditorium A1.

LUNCH

Lunches (except for students) and coffee-breaks are included in the conference registration fee. Coffee breaks will be served near the lecture rooms.

The lunches will be served in the University restaurant located in the Campus of Gualtar (see location on the map). Lunch tickets must be presented at the local.

INTERNET ACCESS

A wireless network will be available on the building CP2 (SSID: e-UM-events). Furthermore, in room 2.109 some computer terminals are available for participants.

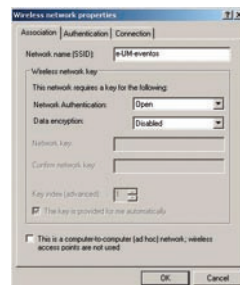
Connection to wireless network

To have wireless connectivity to the Internet you must follow the following steps:

1. Click Start/Control Panel.
2. Select Network Connections. Find the wireless network card icon, right-click, and select Properties.
3. Select the Wireless Networks tab. Click Add.



4. The following Picture shows how the wireless network should be added.

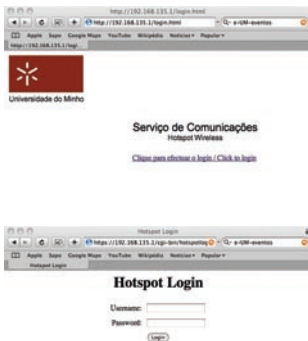


5. Click Ok to close all windows.

6. You are now connected to the “e-UM-eventos” wireless network and can access the Internet.



7. Next, open the Internet browser. When you try to access a website you'll be asked for authentication. Click on “Clique para efectuar o login / Click to login” and introduce the username/password that was previously given to you. You must allow pop-up windows.



8. After successful authentication, you are redirected to the desired website and a little window appears confirming the connection to the wireless hotspot. Don't close this window.



9. When you want to logout, click on logout (previous picture). The window will show you a confirmation of the successful logout.



OTHER FACILITIES

In the campus of Gualtar of the Universidade do Minho you can find many bars, a grill, a restaurant, a cantina, two banks, a bookshop, a travel agent, a computers shop, a printing shop, sport fields, etc.

Several ATM machines can be found in the Campus, namely, one at each CP buildings.

EVENTS

On the first day a **welcome reception**, will be held at University restaurant at 19:30. The reception ticket is not included for students.

Conference banquet is included in the registration fee (except for students) and it will be held in "Colunata - Bom Jesus" (see map on the banquet ticket) on the 5th of September. Buses for dinner venue departure from CP2 hall at 19h45.

Different touristic tours will be available:

- 4th September: Braga Essential (4h)
- 5th September: Guimarães and Oporto (8h)
- 6th September: to be announced

The tours are designed to give delegates the opportunity to gain first-hand knowledge and experience of Braga and surroundings. Places on each tour are limited to a maximum and minimum number of participants.

CONTACTS

E-MAIL: chempor@deb.uminho.pt

TEL.: +351 253 604 401 | +351 253 604 407

FAX: +351 253 678 986

ADDRESS:

ChemPor 2008

Universidade do Minho

Departamento de Engenharia Biológica

Campus de Gualtar

4710-057 Braga – Portugal

LOCAL INFORMATION

TIME ZONE

Braga is in the Greenwich Mean Time

CURRENCY

The Portuguese currency is the Euro. Money can be withdrawn from ATM machines in the campus or in the city.

USEFUL TELEPHONE NUMBERS

Emergency: 112

Braga Táxis Service 24/24: 253 253 253

Railway station: 253 273 665 | 253 278 552

SMOKING POLICY

Smoking in Portugal is not allowed inside all buildings. Please check before lighting a cigarette.

TIPPING

In some restaurants it is usual to tip for the service, 2-7%.

VOLTAGE, SOCKETS AND PLUGS

The standard Portuguese voltage is 220 volts. Please check in your hotel for plug adaptors if you are coming from USA and UK.

TOURISTIC OFFICE

The touristic office is located in the main square in the center of Braga, more specifically in Av. da Liberdade, 1. It is open from 9h00 to 19h00, from Monday to Friday and 9h-12h30 and 14h-17h30, on Saturdays and Sundays. Contact: 253 262 550.

LANGUAGE

Portuguese is the official language in Portugal. But it is possible to find English speakers in almost every place.

Some of the more important sentences are listed below with the respective translation and pronunciation:

ENGLISH	PORTUGUESE	PORTUGUESE PRONUNCIATION
Yes	Sim	SSIː
Yes, please	Sim, por favor	SSIː, pur fa-VOR
No	Não	NÃO
No, thank you	Não, obrigado/obrigada	NÃO, o-bri-GA-du/o-bri-GA-da
Sorry!	Desculpe!	dess-KUL-pe
Speak slowly, please!	Fale devagar, por favor!	FA-le de-va-GAR, pur fa-VOR!
I don't understand	Eu não entendo	Eu NÃO in-TEN-du
Hello/goodbye	Olá/Adeus	o-LA/Ade-us
How are you?	Como está?	KO-mu Ess-taa?
Fine, thank you	Bem, obrigado/obrigada	Bê, o-bri-GA-du/o-bri-GA-da
Bad	Mal	Mal
See you later	Até logo	a-TÉ lô-gu
Do you speak English?	Fala Inglês?	FA-la ing-LÊSS?
How much does this cost?	Quanto custa isso?	ku-ã-tu KUSS-ta ISS-u?
It cost ... euros	Isso custa ... euros	Issu cus-ta ... eu-ros
Two beers, please!	Duas cervejas, por favor!	DU-as sser-VE-jas, pur fa-VOR!
Where is the toilet	Onde é o quarto de banho?	On-de E o qu-ar-tu de ba-nho?

SHORT PROGRAM

4TH SEPTEMBER

09h00	CHEMPOR Jovem				LH B1
11h00	<i>Chairpersons: Teresa Tavares & A. Salvador Pinheiro</i>				
10h00	Welcoming participants				
11h00	Opening Session				LH A1
11h30	Long Term Achievement Lecture: T. Reg. Bott - Meeting the Challenge & Biofouling Control in Cooling Water				LH A1
	<i>Chairmen: João de Deus Pinheiro & Luís Soares</i>				
12h30	Lunch				
14h00	Invited lecture 1: James Clark - Green Chemistry and the Biorefinery				LH A1
	<i>Chairmen: Juan Lema & Luís Sousa Lobo</i>				
14h45	Invited lecture 2: Edward Cussler - Adding Value to Chemical Products				LH A1
	<i>Chairmen: F. Ramôa Ribeiro & Pedro Saraiva</i>				
15h30	Coffee Break				
16h00	LH 2.101	LH 2.102	LH 2.103	LH B2	LH B1
16h30	A01*	B01*	C01*	D01*	E01*
16h50	A02	B02	C02	D02	E02
17h10	A03	B03	C03	D03	E03
17h30	A04	B04	C04	D04	E04
17h30	A05	B05	C05	D05	E05
18h00	Poster Session I		LH 2.111	Poster Session II	
19h15	Welcome Reception				

5TH SEPTEMBER

09h00	Invited lecture 3: Charles Cooney - Innovation at Interfaces <i>Chairmen: Manuel Mota & Joaquim S. Cabral</i>				LH A1
09h45	Invited lecture 4: Rafiqul Gani - A process Systems engineering approach for managing the complexity <i>Chairmen: Augusto Q. Novais & Clemente Pedro Nunes</i>				LH A1
10h30	Coffee Break				
10h45	LH 2.101	LH 2.102	LH 2.103	LH B2	LH B1
11h05	A06	B06	C06	D06	E06
11h25	A07	B07	C07	D07	E07
11h45	A08	B08	C08	D08	E08
12h10	Poster Session III		LH 2.111	Poster Session IV	
13h00	Lunch				
14h30	Invited lecture 5: Ka Ming Ng - Development of Crystallization Processes for Separating Multicomponent Mixtures <i>Chairmen: Alfrío Rodrigues & João Crespo</i>				LH B1
15h20	LH 2.101	LH 2.102	LH 2.103	LH B2	LH B1
15h50	A10*	B10*	C10*	D10*	E10*
15h50	Coffee Break				
15h15	A11	B11	C11	D11	E11
16h35	A12	B12	C12	D12	E12
16h55	A13	B13	C13	D13	E13
17h15	A14	B14	C14	D14	E14
17h35	A15	B15	C15	D15	E15
18h00	Poster Session III		LH 2.111	Poster Session IV	
20h00	Banquet				

6TH SEPTEMBER

09h00	Invited lecture 6: S. Fayo de Azevedo - Educating Chemical Engineers for coming challenges LH A1 <i>Chairmen: Carlos Costa & Lélíio Q. Lobo</i>				LH A1
	LH 2.101	LH 2.102	LH 2.103	LH B2	LH B1
09h50	A16	B16	C16	D16	E16
10h10	A17	B17	C17	D17	E17
10h30	A18	B18	C18	D18	E18
10h50	Coffee Break				
	LH B1	LH B2	LH 2.111	LH 2.105	
11h15	Workshop on innovation and Technology Transfer <i>Chairman: Lígia Rodrigues</i>	F01	Poster Session V	Poster Session VI	
11h35		F02			
11h55		F03			
12h15		F04			
12h35		F05			
12h55	Lunch				
	LH 2.101	LH 2.102	LH 2.103	LH B2	LH B1
14h30	A19*	A24*	C19*	E19*	E24*
15h05	A20	A25	C20	E20	E25
15h25	A21	A26	C21	E21	E26
15h45	A22	A27	C22	E22	E27
16h05	A23	A28	C23	E23	E28
16h25	Coffee Break				
16h45	Closing Session				

Lecture hall (LH)

A1	2.101	2.102	2.103
2.105	2.111	B1	B2

- A Advancing the chemical and biological engineering fundamentals
- B Multi-scale and/or multi-disciplinary approach to process-product innovation
- C Sustainable process-product development through green chemistry
- D Systematic methods and tools for managing the complexity
- E Integration of life sciences & engineering
- F Educating chemical and biological engineers for coming challenges

LH - Lecture hall

* 30 min keynote

DETAILED PROGRAM

4th September

9:00 - 11:00 - CHEMPORJovem

Session Chairs: Teresa Tavares (Univ. do Minho), António Salvador Pinheiro (Ordem dos Engenheiros)

Students contest: Project presentations

11:00 - 11:30 - Opening Ceremony

11:30 - 12:30 - Long Term Achievement Lecture

Session Chairs: João de Deus Pinheiro (Univ. do Minho), Luís Soares (Univ. do Minho)

Meeting the Challenge & Biofouling Control in Cooling Water: T. Reg. Bott (Univ. of Birmingham)

14:00 - 14:45 - Invited Lecture 1

Session Chairs: Juan Lema (Univ. Santiago de Compostela), Luís Sousa Lobo (Univ. Nova de Lisboa)

Green Chemistry and the Biorefinery: James Clark (Univ. of York)

14:45 - 15:30 - Invited Lecture 2

Session Chairs: F. Ramôa Ribeiro (Instituto Superior Técnico-UTL), Pedro Saraiva (Univ. Coimbra)

Adding Value to Chemical Products: Edward Cussler (Univ. of Minnesota)

A 16:00 - 17:50 - Advancing the chemical and biological engineering fundamentals I

Session Chairs: J. Figueiredo (Univ. Porto), Carlos M. Silva (Univ. Aveiro)

- A01 Gas-liquid mass transfer in gas-liquid-liquid dispersions in a stirred tank: effect of spreading coefficient**
Henrique Pinho (Instituto Politécnico de Tomar), Rui Santana (Rolear S.A.), [Sebastião Alves](#) (Instituto Superior Técnico)
-
- A02 Oxygen transfer characterization in three-phase reactors using silicone oil as vector**
[Guillermo Quijano](#) (Cinvestav), Frédéric Thalasso (Cinvestav)
-
- A03 Fluidization behaviour of different shaped large particulate food materials: Effect of moisture and shape**
[Wijitha Senadeera](#) (Queensland Univ. of Technology)
-
- A04 Modeling of a novel photoreactor for multiphase applications**
[Joana T. Carneiro](#) (Delft University of Technology), Rob Berger (Anaproc), Jacob A. Moulijn (Delft University of Technology), Guido Mul (Delft University of Technology)
-
- A05 Prediction of mean bubble size in three scales of internal loop airlift reactor**
Marcel O. Cerri, Juliana C. Baldacin, [Antonio J. G. Cruz](#), Carlos O. Hokka, Alberto C. Badino (Univ. Federal S. Carlos)

B 16:00 - 17:50 - Multi-scale and/or multi-disciplinary approach to process-product innovation I

Session Chair: José Miguel Loureiro (Univ. Porto)

- B01 Design and Engineering of Structured Molecular Matter**
[Ton Broekhuis](#) (Univ. Groningen)
-

B02 Systematic Modelling Framework in Product-Process Design and Development

Ricardo Morales-Rodríguez (CAPEC-DTU), Rafiqul Gani (CAPEC-DTU)

B03 Combining Predictions at Multiple Scales for Process ModellingMarco Reis (Univ. Coimbra)**B04 Integration of traditional and supercritical fluid techniques to design drug delivery systems**Mariana Costa (Univ. Nova de Lisboa), Ana Sousa (IBET), Ana Duarte (Univ. Nova de Lisboa),
M. Margarida Cardoso (Univ. Nova de Lisboa), Catarina Duarte (Univ. Nova de Lisboa)**B05 Thermoresponsive Hydrogels for Drug Delivery Systems**José Almeida (Univ. Coimbra), Paula Ferreira (Univ. Católica Portuguesa), Armando Alcobia (Hospital Garcia da Horta),
António Lopes (Univ. Nova de Lisboa), Maria Helena Gil (Univ. Coimbra)**C 16:00 - 17:50 - Sustainable process-product development through green chemistry I**

Session Chair: Carlos Bernardo (Univ. Minho)

C01 Production of oligo-galacturonic acids by pectin hydrolysis using sub- and supercritical waterStefan Toepfl (DIL), Ulf Strijowski (DIL), Volker Heinz (DIL)**C02 Synthesis of tripropionin from crude glycerol the by-product of biodiesel production**

Zsanett Herseczki (Univ. of Pannonia), Gyula Marton (Univ. of Pannonia)

C03 The future sustainability of biodiesel

Renato Carvalho (Iberol), Luís Vilela de Matos (Iberol)

C04 Construction and Bioproduction of a “Green” Synthetic Protein-Based Polymer Exhibiting a Smart BehaviourRaul Machado (Univ. Minho), Jorge Padrão (Univ. Minho), Alexandra Nobre (Univ. Minho), José Teixeira (Univ. Minho),
António Cunha (Univ. Minho), Javier Arias, José Rodríguez-Cabello (E.T.S.I.I.), Margarida Casal (Univ. Minho)**C05 Lignin-based polyurethane materials**Carolina Cateto (Univ. Porto/Inst. Politécnico de Bragança, LGP2-INPG), Filomena Barreiro (Inst. Politécnico de
Bragança), Alírio Rodrigues (Univ. Porto), Naceur Belgacem (LGP2-INPG)**D 16:00 - 17:50 - Systematic methods and tools for managing the complexity I**

Session Chairs: Romualdo Salcedo (Univ. Porto), Nazmul Karim (Texas Tech. Univ.)

D01 Constructing Chemical Reaction Networks Through Decoupling, Regression and RationalisationSamantha Burnham (Curtin Univ. of Technology), Mark Willis (Newcastle Univ.),
Moses Tadó (Curtin Univ. of Technology)**D02 A Multi-objective Optimization for the Design and Periodic Scheduling of Multipurpose Facilities**

Tânia Rute Pinto (INETI), Ana Paula Barbósa-Póvoa (Instituto Superior Técnico), Augusto Novais (INETI)

D03 The Influence of Products’ Portfolio Demand on the Optimal Supply Chain PlanningAna Cristina Amaro (Inst. Politécnico de Coimbra), Ana Paula Barbósa-Póvoa (Instituto Superior Técnico)

D04 Nonlinear dynamic modeling of a real pilot scale continuous distillation column for fault tolerant control purposes
 Nuno Batalha, [Pedro Oliveira](#) (Inst. Superior Técnico), João Silva (ISEL), Carla Pinheiro (Inst. Superior Técnico), José Borges (Inst. Superior Técnico)

D05 Applications of Model Based Design of Polymer Products
 Dulce Silva, Rui Bastos, Nuno Oliveira (Univ. de Coimbra)

E 16:00 - 17:50 - Integration of Life Sciences and Engineering I

Session Chairs: F. Xavier Malcata (Univ. Católica), Isabel Rocha (Univ. Minho)

E01 Methods and tools for global sensitivity analysis of dynamic models of biological systems
[Maria Rodriguez-Fernandez](#) (IIM-CSIC), Julio Banga (IIM-CSIC)

E02 Stochastic Modelling of the Baculovirus/Insect Cells System: Prediction of Recombinant Protein Expression
[António Roldão](#), Manuel Carrondo, Paula Alves, Rui Oliveira (Univ. Nova de Lisboa)

E03 Scaling-up control of yeast fed-batch cultures
[Laurent Dewasme](#) (Faculté Polytechnique de Mons), Xavier Hulhoven (Faculté Polytechnique de Mons), Alain Vande Wouwer (Faculté Polytechnique de Mons)

E04 Adaptive extremum-seeking control of yeast fed-batch cultures
[Laurent Dewasme](#) (Faculté Polytechnique de Mons), Alain Vande Wouwer (Faculté Polytechnique de Mons), Michel Perrier (Ecole Polytechnique de Montréal)

E05 Improvement of baculovirus vectors production based on the metabolic characterization and modelling of Sf-9 cultures
[Nuno Carinhas](#), Vicente Bernal, Adriana Yokomizo, Tiago Vicente, Manuel Carrondo, Rui Oliveira, Paula Alves (Univ. Nova de Lisboa)

18:00 - 19:30 - Poster Sessions

Session I: "Advancing the chemical and biological engineering fundamentals"

Session II: "Multi-scale and/or multi-disciplinary approach to process-product innovation"

5TH SEPTEMBER

09:00 - 09:45 - Invited Lecture 3

Session Chairs: Manuel Mota (Univ. Minho), Joaquim Cabral (Instituto Superior Técnico)

Innovation at Interfaces: Charles Cooney (MIT)

09:45 - 10:30 - Invited Lecture 4

Session Chairs: Augusto Novais (INETI), Clemente Nunes (Instituto Superior Técnico)

A Process Systems Engineering Approach for Managing the Complexity
 Rafiqul Gani (DTU, Department of Chemical and Biochemical Engineering)

A 10:45 - 12:05 - Advancing the chemical and biological engineering fundamentals II

Session Chairs: Eugénia Macedo (Univ. Porto), Armando Venâncio (Univ. Minho)

- A06 Solubility of Multifunctional Associating Molecules: Measurements and Thermodynamic Modeling**
António Queimada (Univ. Porto), Fátima Mota (Univ. Porto), Simão Pinho (Univ. Porto, Inst. Politécnico de Bragança), Maria Eugénia Macedo (Univ. Porto)
-
- A07 Diffusion coefficients and conductivities of some ionic liquids**
 Chun-Li Wong, Allan Soriano, Meng-Hui Li (Chung Yuan Christian University)
-
- A08 Inhibitor effect of selected anionic surfactants on the dissolution of calcium sulfate in aqueous brines**
Cristiana Loureiro, Fatima Farello, Lurdes Serrano, Manuel Pereira (Instituto Superior Técnico)
-
- A09 Crosslinked analogues of ionic-liquids – a versatile medium and catalysts for organic reactions**
 Andrzej Trochimczuk (Wroclaw Univ. of Technology), Sylwia Ronka (Wroclaw Univ. of Technology)

B 10:45 - 12:05 - Multi-scale and/or multi-disciplinary approach to process-product innovation II

Session Chair: António Vicente (Univ. Minho)

- B06 CFD simulation of an oxidation ditch**
Anna Karpinska, Joana Pereira, Madalena Dias, Ricardo Santos (Univ. Porto)
-
- B07 CFD Modelling of Trickle-bed reactor in the Catalytic Wet Air Oxidation of Syringic Acid**
Rodrigo Lopes (Univ. Coimbra), Rosa Quinta-Ferreira (Univ. Coimbra)
-
- B08 Characterization of Water Species Revealed in the Drying Operation of Squid by Using Water Proton NMR Analysis**
Yasuyuki Konishi (Hokkaido Industrial Technology), Masayoshi Kobayashi (ADTEC), Kou-ichi Miura (Kitami Institute of Technology)
-
- B09 Mixed Convection Heat Transfer Augmentation in a Backward Facing Step utilizing Nanofluids**
 Dhinakaran S. (Univ. Minho)

C 10:45 - 12:05 - Sustainable process-product development through green chemistry II

Session Chairs: Javier Lafuente (Univ. Aut. Barcelona), Madalena Alves (Univ. Minho)

- C06 Catalytic Wet Air Oxidation plus Biological Treatment to deal with a high-strength o-cresol wastewater**
 María Eugenia Suárez-Ojeda (Univ. Autònoma Barcelona), Javier Lafuente (Univ. Autònoma Barcelona), Azael Fabregat (Univ. Rovira i Virgili), Josep Font (Univ. Rovira i Virgili), Julián Carrera (Univ. Autònoma Barcelona)
-
- C07 Two-aqueous Phase Extraction for the Removal of Organic Pollutants and Metal Ions**
 Lindemberg de Jesus Nogueira Duarte (CEFET-BA), Jean-Paul Canselier (INP Toulouse)
-
- C08 Biosorption of CrVI supported on mordenite zeolite**
Hugo Figueiredo, Teresa Tavares, Isabel Neves, Bruna Silva, Cristina Quintelas (Univ. Minho)
-
- C09 Phosphorus removal from an industrial wastewater by struvite crystallization into an airlift reactor**
Juan Garrido (U Santiago de Compostela), Alberto Sánchez (Univ. of Santiago de Compostela), Ramón Méndez (Univ. of Santiago de Compostela), Sonia Barros (3R Ingeniería Ambiental)

D 10:45 - 12:05 - Systematic methods and tools for managing the complexity III

Session Chairs: Sebastião Foyo de Azevedo (Univ. Porto, Portugal), Argimiro Secchi (UF Rio Grande do Sul, Brazil)

D06 Global dynamic optimization of chemical and bio-processes using the Scatter Search metaheuristic

Jose Egea (IIM-CSIC), María-Sonia García (IIM-CSIC), Eva Balsa-Canto (IIM-CSIC), Julio Banga (IIM-CSIC)

D07 Integrating Real-Time Optimization and Control for Optimal Operation: Application to the Bio-ethanol Process

Silvia Ochoa (Technische Univ. Berlin), Jens Repke (Technische Univ. Berlin), Günter Wozny (Technische Univ. Berlin)

D08 On-Line Adaptive Metabolic Flux Analysis: Application to PHB Production by Mixed Microbial Cultures

João Dias, Filipa Pardelha, Mário Eusébio, Maria Reis, Rui Oliveira (Univ. Nova de Lisboa)

Modelling of Membrane Bioreactors for Wastewater Treatment Incorporating 2D-Fluorescence Monitoring Data

D09 Claudia Galinha (Univ. Nova de Lisboa), Carla Portugal (Univ. Nova de Lisboa), Gilda Carvalho (Univ. Nova de Lisboa), Rui Oliveira (Univ. Nova de Lisboa), Maria Reis (Univ. Nova de Lisboa), João Crespo (Univ. Nova de Lisboa), Giuseppe Guglielmi (Univ. of Trento), Daniele Chiarani (Univ. of Trento), Gianni Andreottola (Univ. of Trento)

E 10:45 - 12:05 - Integration of Life Sciences and Engineering II

Session Chairs: Francisco Valero (Univ. Aut. Barcelona), Maria Alice Coelho (Univ. Fed. Rio Janeiro)

E06 Lactose fermentation by recombinant *Saccharomyces cerevisiae* strains

Pedro Guimarães (Univ. Minho), José Teixeira (Univ. Minho), Lucília Domingues (Univ. Minho)

E07 Studies on fed-batch operation mode on biosynthesis of short chain ethyl esters catalyzed by cutinase

Dragana Barros (Instituto Superior Técnico), Susana Bernardino (Instituto Superior Técnico and ESTM/IPLeiria), Pedro Fernandes (Instituto Superior Técnico), Joaquim Cabral (Instituto Superior Técnico), Luís Fonseca (Instituto Superior Técnico)

E08 New enzymatical process for glycerol utilization

Andrea Balassy, Aron Nemeth, Bela Sevela (Budapest Univ. of Technol.)

E09 Biosorption of hexavalent chromium by *Arthrobacter viscosus*

Bruna Silva, Hugo Figueiredo, Cristina Quintelas, Isabel Neves, Teresa Tavares (Univ. Minho)

12:10 - 13:00 - Poster Sessions

**Session III: "Systematic methods and tools for managing the complexity"
& "Integration of life sciences and engineering"**

Session IV: "Integration of life sciences and engineering"

14:30 - 15:15 - Invited Lecture 5

Session Chairs: Alírio Rodrigues (Univ. Porto), João Crespo (Univ. Nova de Lisboa)

Development of Crystallization Processes for Separating Multicomponent Mixtures

Ka Ming Ng (Hong Kong Univ. of Science and Technology)

A 15:20 - 17:55 - Advancing the chemical and biological engineering fundamentals III

Session Chairs: Margarida Figueiredo (Univ. Coimbra), António Salvador Pinheiro (Ordem dos Engenheiros)

A10 Particle Agglomeration in Cyclones

Julio Paiva (Univ. Porto), Romualdo Salcedo (Univ. Porto), Paulo Araujo (CUF)

A11 Extending Kozeny-Carman permeability model to highly porous media

Alexander Yelshin (Univ. of Minho), Manuel Mota (Univ. Minho)

A12 Optimal operating conditions for the separation of lactobionic acid, sorbitol, fructose and lactose using a 5-section pseudo-SMB

Israel Pedruzzi, Pedro Sá Gomes, Eduardo Borges da Silva, Alírio Rodrigues (Univ. Porto)

A13 Observation of inertial particle motion in laminar flow in a stirred vessel

Naoto Ohmura (Kobe Univ.), Nami Nishioka (Kobe Univ.), Alatengtuya (Kobe Univ.), Mohamed N. Noui-Mehidi (CSIRO), Jie Wu (CSIRO), Norihisa Kumagai (Kobe Univ.), Teiji Takigawa (Eisai Co. Ltd.)

A14 Assessment of the tartaric stability of wines deionised by electrodialysis

Patricia Soares (Instituto Superior Técnico), Vitor Geraldes (Instituto Superior Técnico), Cristina Fernandes (Instituto Superior Técnico), Paulo Cameira (INIAP, Estação Agronómica Nacional), Maria Norberta de Pinho (Instituto Superior Técnico)

A15 Characterization of a Microporous Titanosilicate AM-3 Membrane - Pure gas permeation

Patrícia Lito, Sara Barros, Chunfang Zhou, João Rocha, Zhi Lin, Carlos Silva (Univ. of Aveiro)

B 15:20 - 17:55 - Multi-scale and/or multi-disciplinary approach to process-product innovation III

Session Chairs: José A. Teixeira (Univ. Minho), Gabriela Bernardo-Gil (Inst. Superior Técnico)

B10 Electric Swing Adsorption Process for Gas Purification

Carlos Grande (Univ. Porto), Rui Ribeiro (Univ. Porto), Alírio Rodrigues (Univ. Porto)

B11 Cholesterol removal by nanofiltration in organic solution

C. Allegre (Univ. P. Cézanne Aix-Marseille), Emilie Carretier (Univ. P. Cézanne Aix-Marseille), Philippe Moulin (UMR CNRS 6181)

B12 Beer aroma recovery by pervaporation

Margarida Catarino (Univ. Porto), Luís Madeira (Univ. Porto), António Ferreira (Unicer Bebidas S.A.), Adélio Mendes (Univ. Porto)

B13 Determination of the wall shear stress by numerical simulation: membrane process applications

Fanny Springer (Univ. Paul Cézanne Aix), Rémy Ghidossi (POLYTECH Marseille), Emilie Carretier (Univ. Paul Cézanne Aix), Damien Veyret (POLYTECH Marseille), Didier Dhaler (NOVASEP – APPLEXION SAS), Philippe Moulin (Univ. Paul Cézanne Aix)

B14 Active mixing strategies for Confined Impinging Jets

Mohamed Sultan, Ertugrul Erkoç, Ricardo Santos, Madalena Dias, José Carlos Lopes (Univ. Porto)

B15 Ultrasound – assisted extraction of active principles from *Arctium lappa* L. (Burdock) roots, *Stevia rebaudiana* Bert. leaves and *Cynara scolymus* L. (Artichoke) leaves

Ani Alupului (Univ. Politehnica of Bucharest), Lavric Vasile (Univ. Politehnica of Bucharest)

C 15:20 - 17:55 - Sustainable process-product development through green chemistry III

Session Chairs: Luís Melo (Univ. Porto), Rosário Oliveira (Univ. Minho)

- C10 EcoDesign through a Multi-criteria Environmental Decision Tool based on Fuzzy Logic**
Marta Herva (Univ. Santiago Compostela), Amaya Franco (Marine Research Institute IIM-CSIC), Eugenio Fdez-Carrasco (Univ. of Santiago de Compostela), Enrique Roca (Univ. of Santiago de Compostela)
-
- C11 Design of sustainable processes: Systematic generation & evaluation of alternatives**
Ana Carvalho (Instituto Superior Técnico), Henrique Matos (Instituto Superior Técnico), Rafiqul Gani (CAPEC-DTU)
-
- C12 Modeling of Orange II advanced biodecolourisation in upflow stirred packed-bed reactor**
Gergo Mezohegyi (Univ. Rovira i Virgili), Christophe Bengoa (Univ. Rovira i Virgili), Frank Stuber (Univ. Rovira i Virgili-ETSEQ-Departament d'Enginyeria Química), Josep Font (Univ. Rovira i Virgili), Agustí Fortuny (Univ. Politècnica de Catalunya), Azael Fabregat (Univ. Rovira i Virgili)
-
- C13 Photocatalytic paint production for the abatement of nitrogen oxides**
 César Águia (Univ. Porto), Adélio Mendes (Univ. Porto), Luis Madeira (Univ. Porto), Hermenegildo Garcia (ITQ-CSIC), Francesc Xamena (ITQ-CSIC), Esther Dominguez (ITQ-CSIC)
-
- C14 Starch filter-cake enzymatic degradation**
Etel Kameda (Univ. Federal Rio de Janeiro), Rafael de Mesquita (Univ. Federal Rio de Janeiro), Marta Langone (UERJ), João Queiroz Neto (CENPES - PETROBRAS), Maria Alice Coelho (Univ. Federal Rio de Janeiro)
-
- C15 Robust multi-objective cascade controller for an anaerobic digester**
 Carlos Garcia (Univ. Santiago de Compostela), Francisco Molina (Univ. of Antioquia), Enrique Roca (Univ. of Santiago de Compostela), Eugenio Carrasco (Univ. of Santiago de Compostela), Juan Lema (Univ. Santiago de Compostela)

D 15:20 - 17:55 - Systematic methods and tools for managing the complexity III

Session Chairs: Michel Perrier (Ecole Polyt. Montréal), Eugénio Ferreira (Univ. Minho)

- D10 Modeling, Identification and, Control of Complex Systems:**
 Srinivas Karra, Nazmul Karim (Texas Tech Univ.)
-
- D11 Performance indicators for reactive distillation design**
Rui Filipe (ISEL), Henrique Matos (Instituto Superior Técnico), Augusto Novais (INETI)
-
- D12 The Importance of Models and Practical Integration in Process Development; Cases from the Simulated Moving Bed technology**
Pedro Sá Gomes (Univ. Porto), Mirjana Minceva (Univ. Porto), Alírio Rodrigues (Univ. Porto)
-
- D13 A chemometric tool to monitor high-rate anaerobic granular sludge reactors during load and toxic disturbances**
José Costa (Univ. Minho), Madalena Alves (Univ. Minho), Eugénio Ferreira (Univ. Minho)
-
- D14 In-Line Monitoring of Particle Size during Vinyl Acetate and Butyl Acrylate Emulsion Copolymerization in a Continuous Pulsed Sieve Plate Reactor using NIR Spectroscopy**
 Dennis Chicoma Lara (Univ. São Paulo), Claudia Sayer (Federal Univ. of Santa Catarina), Reinaldo Giudici (Univ. São Paulo)
-
- D15 Control of bromelain recovery process through conventional and fuzzy controllers**
 Manuela S. Leite, Flávio V. Silva, Tatiana L. Fujiki, Ana M. F. Fileti (UNICAMP)

E 15:20 - 17:55 - Integration of Life Sciences and Engineering III

Session Chair(s): Maria Helena Gil (Univ. Coimbra), Mariana Henriques (Univ. Minho)

- E10 Micro-scale and Bioreactor Systems for the Expansion of mouse embryonic stem (mES) cells**
Ana Fernandes (Instituto Superior Técnico), Tiago Fernandes (Instituto Superior Técnico), Maria Margarida Diogo (Instituto Superior Técnico), Cláudia Lobato da Silva (Instituto Superior Técnico), Domingos Henrique (IMM, FML), Jonathan Dordick (RPI), [Joaquim Cabral](#) (Instituto Superior Técnico)
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- E11 Purification of human antibodies using affinity aqueous two-phase systems**
Paula Rosa, Ana Azevedo, Isabel Ferreira, Maria Raquel Aires-Barros (Instituto Superior Técnico)
-
- E12 Nano and micro-biocatalysts manufacture and their impact on the synthesis of b-lactamic antibiotics**
Susana Bernardino, Juan Gallegos, Filipa Maduro, Luís Fonseca, [Pedro Fernandes](#), [Joaquim Cabral](#) (Instituto Superior Técnico)
-
- E13 Biopolymers Production by Microbial Fermentation on Glycerol-Rich Product**
[Filomena Freitas](#), Vítor Alves, Joana Pais, Nuno Costa, Mónica Carvalheira, Rui Oliveira, Maria Reis (Univ. Nova de Lisboa)
-
- E14 Antibody conjugated PLGA nanoparticles containing anti-cancer drugs for site-specific drug delivery**
Inês Peça, Mariana Costa, A.C. Roque, Ana Bicho, M. Margarida Cardoso (Univ. Nova de Lisboa)

18:00 - 19:00 - Poster Sessions

Session III: "Systematic methods and tools for managing the complexity"

Session IV: "Integration of life sciences and engineering"

6TH SEPTEMBER
09:00 - 09:45 - Invited Lecture 6

Session Chairs: Carlos Costa (Univ. Porto), Lélío Lobo (Univ. Coimbra)

Educating Chemical Engineers for coming challenges

Sebastião Feyo de Azevedo (Univ. Porto)

A 09:50 - 10:50 - Advancing the chemical and biological engineering fundamentals IV

Session Chairs: João Coutinho (Univ. Aveiro), J. Costa Reis (SP Química)

- A16 Pure Solvent Solubility of Some Pharmaceutical Molecules**
[Fátima Mota](#) (Univ. Porto), Antonio Queimada (Univ. Porto), Simão Pinho (Univ. Porto, Inst. Politécnico de Bragança), Maria Eugénia Macedo (Univ. Porto)
-
- A17 Basicity promotion and mechanism aspect of liquid selective oxidation of alcohols on Au/Activated-Carbon catalyst**
[Junjiang Zhu](#), José Figueiredo, Joaquim Faria (Univ. Porto)
-
- A18 Computer-aided phase equilibria prediction for organic systems: UNIFAC-CI. Analysis, revision and extension**
Hugo Gonzalez (DTU), Jens Abildskov (DTU), Rafiqul Gani (DTU)

B 9:50 - 10:50 - Multi-scale and/or multi-disciplinary approach to process-product innovation IV

Session Chairs: José Cardoso Menezes (Inst. Superior Técnico), Joana Azeredo (Univ. Minho)

B16 Monitoring multi-component liquid reaction systems containing highly dispersible heterogeneous catalysts using in situ diode array spectrophotometry and band-fitting techniques

Luís Costa, Vânia Brissos, Francisco Lemos, F. Ramôa Ribeiro, Joaquim Cabral (Instituto Superior Técnico)

B17 High-throughput pharmaceutical process monitoring: integrating the hardware and software components

Mafalda Sarraguça (Univ. Porto), Lígia Brás (Worldmetrics Consulting), João Lopes (REQUIMTE / Univ. Porto)

B18 Pharmaceutical Engineering

Jose Menezes (Instituto Superior Técnico), João Bordado (Instituto Superior Técnico), Jose Morais (Univ. Lisboa), Rogério Gaspar (Univ. Lisboa)

C 9:50 - 10:50 - Sustainable process-product development through green chemistry IV

Session Chair: Rogério Simões (Univ. Beira Interior)

C16 Fenton's treatment of aqueous phenol effluents in presence of anionic surfactants

Xavier Bernat (Univ. Rovira i Virgili), Agustí Fortuny (Univ. Politècnica de Catalunya), Christophe Bengoa (Univ. Rovira i Virgili), Frank Stüber (Univ. Rovira i Virgili), Azael Fabregat (Univ. Rovira i Virgili), Josep Font (Univ. Rovira i Virgili)

C17 Electrochemical ozone production for in situ atrazine degradation in aquifers - a laboratory study

Ysrael Vera, Roberto Carvalho, Maurício Torem (PUC-Rio de Janeiro)

C18 Catalytic ozonation applied to the treatment of coloured effluents

Patrícia Faria, José Órfão, Manuel Fernando Pereira (Univ. Porto)

D 9:30 - 10:50 - Systematic methods and tools for managing the complexity IV

Session Chairs: Rafiqul Gani (DTU), Evaristo Biscaia Jr. (Univ. Federal Rio Janeiro)

D16 Optimal cleaning schedule for heat exchangers in a heat exchanger network based on continuous time approach

Kanyaluk Ao-ekkasit, Slita Nusong, Soorathep Kheawhom (Chulalongkorn Univ.)

D17 Optimal Design of Water-Using Networks

João Teles (INETI; Instituto Superior Técnico), Pedro Castro (INETI), Henrique Matos (Instituto Superior Técnico)

D18 A Shortcut Design Method for Hybrid Separation Processes

Mikhail Sorin (CANMET Energy Technology Centre), Etienne Ayotte-Sauvé (CANMET Energy Technology Centre), Fernand Rheault (CANMET Energy Technology Centre), Farouzah Sadeghi (CTEC-Varennnes)

E 9:50 - 10:50 - Integration of Life Sciences and Engineering IV

Session Chair: Isabel Belo (Univ. Minho)

E16 Bacterial Diversity in a Biotrickling Filter Treating High Loads of Hydrogen Sulphide

Juan Maestre (Univ. Autònoma de Barcelona), Roger Rovira (Univ. Autònoma de Barcelona), Xavier Gamisans (Univ. Politècnica Catalunya), Kerry Kinney (Univ. of Texas, Austin), Mary Kirisits (Univ. of Texas, Austin), Javier Lafuente (Univ. Aut. Barcelona), David Gabriel (Univ. Autònoma Barcelona)

E17 Biohydrogen production with an EGSB reactor using chloroform and 2-bromoethanesulfonate as inhibitors of hydrogen consuming bacteria
 Ângela Abreu, [Anthony Danko](#), Madalena Alves (Univ. Minho)

E18 Biofilm technology: from support design to reactor operation
[Maria Matos](#), Cláudia Alves, António Brito, Regina Nogueira (Univ. of Minho)

F 11:15 - 12:55 - Educating Chemical Engineers for coming challenges

Session Chairs: L. Miguel Madeira (Univ. Porto), João Silva (ISEL)

F01 Enhancing engineering education in the area of chemical processes through a virtual platform (LABVIRTUAL)
[Licínio Ferreira](#) (Univ. Coimbra), Maria Rasteiro (Univ. Coimbra), J. Teixeira (Univ. Coimbra), F. Bernardo (Univ. Coimbra), M. Graça V Carvalho (Univ. Coimbra), A. Ferreira (Univ. Coimbra), Rosa Quinta Ferreira (Univ. Coimbra), F Garcia (Univ. Coimbra), Cristina Gaudêncio (Univ. Coimbra), N. Oliveira (Univ. Coimbra), Margarida Quina (Univ. Coimbra), Lino Santos (Univ. Coimbra), Pedro Saraiva (Univ. Coimbra), Adélio Mendes (Univ. Porto), F Magalhães (Univ. Porto), J. Granjo (Univ. Coimbra), R. Bastos (Univ. Coimbra), M. Ascenso (Univ. Coimbra), R. Borges (Univ. Coimbra), A. Almeida (Univ. Porto), A. Macedo (MediaPrimer)

F02 Add-ins for Shortcut Design and Sizing of Distillation Columns
[Fernando Martins](#), Marta Cruz, Domingos Barbosa (Univ. Porto)

F03 Continuous and Batch Distillation in an Oldershaw Tray Column
 Carlos M. Silva, Raquel V. Vaz, Tiago M. F. Canhoto, Patrícia F. Lito, Ana S. Santiago (Univ. de Aveiro)

F04 Introduction of design tools in the experimental organic processes
 Erika Christina Chrisman (Univ. Federal Rio de Janeiro), Viviane Lima (Univ. Federal Rio de Janeiro), Ana Cláudia Almeida (UNIFOA)

F05 Virtual Laboratories in (Bio)Chemical Engineering Education
[Lucília Domingues](#), Isabel Rocha, Fernando Dourado, Madalena Alves, Eugénio Ferreira (Univ. do Minho)

11:15 - 12:55 - Poster Sessions

Session V: "Advancing the chemical and biological engineering fundamentals", "Sustainable process-product development through green chemistry" & "Educating Chemical Engineers for coming challenges"

Session VI: "Sustainable process-product development through green chemistry"

A 14:30 - 16:25 - Advancing the chemical and biological engineering fundamentals V

Session Chairs: J. Cruz Pinto (Univ. Aveiro), Francisco Lemos (Inst. Sup. Técnico)

A19 Molecular Weight Distribution in Free-Radical Polymerisation – Model Development, Experimental Validation and Process Optimisation
[Bruno Amaro](#) (Imperial College London), Charles Immanuel (Imperial College London), Efstratios Pistikopoulos (Imperial College London), Andreas Daiß (BASF, Germany), Florian Becker (BASF, Germany), Klaus Hungenberg (BASF, Germany), Pedro Saraiva (Univ. Coimbra)

A20 PVC Paste Rheology: Polymer Properties and Viscoelastic Behaviour

Araldo Tomás (CIRES,S.A.), Maria Rasteiro (Univ. Coimbra), Licinio Ferreira (Univ. Coimbra),
Sofia Figueiredo (Univ. Coimbra)

A21 Optimization of fluidized bed PVC drying

Mélanie Bécu (Université Libre de Bruxelles), Laurent Berkovic (Université Libre de Bruxelles),
Frédéric Debaste (Université Libre de Bruxelles)

A22 SEC/MALLS Measurement of the Branched Structure of Methyl Methacrylate + Ethylene Glycol Dimethacrylate Copolymers Synthesized by Atom Transfer Radical Polymerization

Ivone Trigo (Inst. Politécnico de Bragança), Rolando Dias (Inst. Politécnico de Bragança),
Mário Costa (Univ. Porto), Miguel Gonçalves (Inst. Politécnico de Bragança)

A23 Thermal degradation kinetics of polyethylene in dynamic conditions using simultaneous DSC/TG analysis

Anabela Coelho (Inst. Superior Técnico / Univ. Nova Lisboa), Luís Costa (Inst. Superior Técnico),
Maria das Mercês Marques (Inst. Superior Técnico), Isabel Fonseca (Univ. Nova Lisboa),
Maria Amélia Lemos (Inst. Superior Técnico), Francisco Lemos (Inst. Superior Técnico)

A 14:30 - 16:25 - Advancing the chemical and biological engineering fundamentals VI

Session Chairs: Graça Rasteiro (Univ. Coimbra), Teresa Tavares (Univ. Minho)

A24 Decyl acetate synthesis by enzyme catalysis in scCO₂

Sílvia Rebocho (Univ. Porto), Adriano Ribeiro (Univ. Porto), Olga Ferreira (Univ. Porto), Maria Oliveira (Univ. Porto),
Pedro Vidinha (Univ. Nova de Lisboa), Susana Barreiros (Univ. Nova de Lisboa), Maria Eugénia Macedo (Univ. Porto),
José Miguel Loureiro (Univ. Porto)

A25 Improving Propylene Streams Purity Using Catalytic Membrane Reactors

Miguel Teixeira (Univ. Porto), Adélio Mendes (Univ. Porto), Luis Madeira (Univ. Porto), José Sousa (UTAD)

A26 Improvement by alkaline treatment of HZSM-5 zeolite performance in DME steam reforming

Jorge Vicente (Univ. del País Vasco), Javier Erena (Univ. del País Vasco), Alaitz Atutxa (Univ. del País Vasco),
Ana Gayubo (Univ. del País Vasco), Javier Bilbao (Univ. del País Vasco)

A27 Application of a group contribution CPA EoS to the modelling of biodiesel production

Mariana Oliveira (Univ. Aveiro), Fatima Varanda (Univ. Aveiro), Maria Jorge Melo (Univ. Aveiro), Isabel M. Marrucho
(Univ. Aveiro), Antonio Queimada (Univ. Porto), João Coutinho (Univ. Aveiro)

A28 Sequential Batch Reactor and Plug Flow Reactor Network Comparison under Dynamic Conditions for Wastewater Treatment

Adrián Ferrari (Fac. de Ingeniería - Uruguay), Evaristo Biscaia Jr. (Univ. Federal Rio de Janeiro),
Príamo Melo (Univ. Federal Rio de Janeiro)

C 14:30 - 16:25 - Sustainable process-product development through green chemistry V

Session Chairs: João Bordado (Inst. Superior Técnico), Cristina Gaudêncio (Univ. Coimbra)

C19 Ion exchange membrane bioreactor modelling for removal of anionic micropollutants from drinking water supplies

Ana Ricardo, Rui Oliveira, Svetlozar Velizarov, Maria Reis, João Crespo (Univ. Nova de Lisboa)

C20 Performance comparison of biological and fenton processes for treatment of urban landfill leachates

Cátia Augusto, Margarida Quina, Licinio Ferreira (Univ. Coimbra)

C21 Design and Construction of a Lab-Scale Simulated Moving Bed Unit; The FlexSMB-LSRE – from Theory to Practice
Pedro Sá Gomes, Michal Zabka, Mirjana Minceva, Alírio Rodrigues (Univ. Porto)

C22 Inhibitory effect of phenolic compounds on the activity of angiotensin I converting enzyme

Joana Afonso (Univ. Aveiro), Claudia Passos (Univ. Aveiro), Carlos Silva (Univ. Aveiro), Manuel Coimbra (Univ. Aveiro), Patrício Soares da Silva (Univ. Porto)

C23 A novel view of the manufacture of polyurethane-polyurea aqueous dispersions

Isabel Fernandes (Inst. Politécnico Bragança), Filomena Barreiro (Inst. Politécnico Bragança), Mário Costa (Univ. Porto)

E 14:30 - 16:25 - Integration of Life Sciences and Engineering V

Session Chairs: Carlos Hokka (Univ. Federal S. Carlos), Lucília Domingues (Univ. Minho)

E19 Lignocellulosic materials as a feedstock for polymer synthesis

Matjaz Kunaver (National Institute of Chemistry), Edita Jasiukaityte (National Institute of Chemistry), Vesna Tisler (Univ. of Ljubljana), Sergej Medved (Univ. of Ljubljana)

E20 Bioethanol production from sugars by yeast having sugar uptake ability by expression of sugar transporter

Takanori Tanino, Chiaki Ogino, Norihisa Kumagai, Naoto Ohmura (Kobe Univ.)

E21 Treatment of wood hydrolysates for bioethanol production by fermentation

Cátia Mendes, M. Graça V Carvalho, Jorge Rocha, Cristina Gaudêncio (Univ. Coimbra)

E22 Integration of bioprocesses in polyesters microbial synthesis

Anabela Antunes, Jorge Rocha (Univ. Coimbra)

E23 One-step Cellulosic Ethanol Production

M. Nazmul Karim, Seunghyun Ryu (Texas Tech Univ.)

E 14:30 - 16:25 - Integration of Life Sciences and Engineering VI

Session Chairs: Urs Von Stockar (EPF Lausanne), Rui Oliveira (Univ. Nova Lisboa)

E24 OptGene – a framework for in silico metabolic engineering

Isabel Rocha, Paulo Maia, Miguel Rocha, Eugénio Ferreira (Univ. Minho)

E25 The Potential and the Challenges in Integrating Thermodynamics into Systems Biology

Urs Von Stockar (EPFL), Vojislav Vojinovic (EPFL)

E26 Macroscopic control of intracellular regulation: application to mammalian cell cultures

Ana Teixeira, João Dias, Paula Alves, Manuel Carrondo, Rui Oliveira (Univ. Nova de Lisboa)

E27 Towards PAT bioprocess monitoring and control: near infrared and software sensor

Zita Soons (Wageningen Univ.), Mathieu Streefland (Netherlands Vaccine Institute), Anton Van Boxtel (Wageningen Univ.)

E28 Near-Infrared Reflectance Spectroscopy as a Process Analytical Technology tool in Pharmaceutical Industry

Silvia Rosa (Instituto Superior Técnico & Lab ATRAL SA), Pedro Barata (Lab ATRAL SA), Jose Martins (Lab ATRAL SA), José Menezes (Instituto Superior Técnico)

16:45 - 17:15 - Closing Session

POSTER SESSIONS

SESSION I, THURSDAY, 4TH SEPTEMBER

- Advancing the chemical and biological engineering fundamentals

SESSION II, THURSDAY, 4TH SEPTEMBER

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

SESSION III, FRIDAY, 5TH SEPTEMBER

- Systematic methods and tools for managing the complexity
- Integration of life sciences and engineering

SESSION IV, FRIDAY, 5TH SEPTEMBER

Integration of life sciences and engineering

SESSION V, SATURDAY, 6TH SEPTEMBER

- Advancing the chemical and biological engineering fundamentals
- Sustainable process-product development through green chemistry
- Educating Chemical Engineers for coming challenges

SESSION VI, SATURDAY, 6TH SEPTEMBER

- Sustainable process-product development through green chemistry

POSTERS SESSION I 'ADVANCING THE CHEMICAL AND BIOLOGICAL ENGINEERING FUNDAMENTALS

PA001	The research of the heterogeneous catalytic combustion of the combustible gases. Tatjana Dovbysheva, Anne Yasko
PA002	Regeneration of sulfur poisoned nickel based catalysts for steam reforming catalysts in Razi petrochemical complex. S. Meysam Hashemnejad, Matin Parvari
PA003	Total oxidation of ethyl acetate over TiO₂ supported noble metals catalysts V.P. Santos, M.F.R. Pereira, J.J.M. Órfão, J.L. Figueiredo (Univ. Porto)
PA004	Incidence of the preparation method of the support on the behavior in the n-butane dehydrogenation of Pt/MgAl₂O₄, PtSn/ MgAl₂O₄ y PtPb/ MgAl₂O₄ catalysts. Sonia Bocanegra, Alberto Castro, Osvaldo Scelza, Sergio de Miguel
PA005	Hydrogen production from methane reforming: thermodynamic assessment. Tatiana V. Franco, Cícero N. Ávila-Neto, Lucienne L. Romanielo, Carla E. Hori, Adilson J. Assis
PA006	Hydrogen production from methane autothermal reforming: mathematical modeling and parametric optimization. Sandra C. Dantas, Fabiano de A. Silva, Carla E. Hori, Adilson J. de Assis
PA007	Fluid-dynamics of fluidized beds operating with flat particles. Renata de Aquino B. Lima, Maria C. Ferreira
PA008	Heterogeneous model for mass transfer of dissolved lignin during kraft pulping of Eucalyptus globulus. João P. F. Simão, Cristina M. S. G. Baptista, M. Graça Carvalho
PA009	Axial mixing in extractor column liquid-liquid, without mechanical agitation. Brandão, M.M. and Góis, L.M.N.
PA010	Three-dimensional simulation of bubbly flow: influence of break up and coalescence models. Marcela K. Silva, Renato Dionisio, Marcos A. d'Ávila, Milton Mori
PA011	Comparison of hydrodynamic parameters between an internal and an external airlift column. M. Teresa M. Sena Esteves, Isabel M.B. Pereira, Maria N. Coelho Pinheiro, Alexandra M.F.R. Pinto
PA013	Mass transfer coefficient in three airlift reactors with internal loop using Newtonian fluid. Lucas M. Policarpo, Marcel O. Cerri, Antonio J. G. Cruz, Carlos O. Hokka, Alberto C. Badino

- PA14 **Evaluation of parameters and process conditions of the ethylbenzene dehydrogenation in a fixed bed reactor wrapped with permselective membrane.** Paulo Jardel P. Araújo, Teresa M. K. Ravagnani
- PA15 **Euler-Euler simulation of gas-liquid and gas-liquid-solid airlift reactors: case study.** M. Simcik, J. Havlica, M. C. Ruzicka, J. Drahoš, J.A. Teixeira, T. Brányik
- PA16 **Interfacial instability of bubble during chemisorption.** S.P. Karlov, D.A. Kazenin, A.V. Vyazmin
- PA17 **Effect of kinds of gas on gas holdup in bubble columns.** Fukuji Yamashita and Megumi Nakajima
- PA18 **Simulation of dynamic performance of ozonation treatment of surfactants in a semi-batch bubble column reactor by CFX.** Fukuji Yamashita*, Tomoyuki Suzuki, Haruki, Kobayashi
- PA19 **Particle interaction with coherent structures in a confined two-phase jet.** J.C.S.C. Bastos, R.K. Decker, M. Mori, U. Fritsching
- PA20 **Numerical investigation of unsteady flow and heat transfer from a porous square cylinder.** S. Dhinakaran, António Vicente and Jose Teixeira
- PA21 **Heat transfer in the freeboard of a bubbling fluidized bed.** P. Neto, A.M. Ribeiro, C. Pinho
- PA25 **Dispersion in packed beds.** Ulrich M. Scheven, Rob Harris, Mike L. Johns
- PA26 **Operating the segregated flows of particulate materials as a principle of technological process organization.** Dolginun V.N., Ivanov O.O., Klimov A.M. and Ukolov Al-dr. A.
- PA27 **Hindered motion in highly porous media: steric and fractal approaches.** Manuel Mota, Alexander Yelshin
- PA28 **Another basic segregation mechanism in aerated gravity flows of particulate solids.** Dolginun V.N., Kudy A.N., Klimov A.M. and Ivanov O.O.
- PA30 **Maxwell-Stefan based model for ion exchange in microporous materials.** Patrícia F. Lito, Carlos M. Silva
- PA033 **Competitive adsorption of heavy metals by two different types of soils.** Bruna Fonseca, Aline S. Teixeira, Teresa Tavares
- PA034 **A sequencing method applied to the solution of a linear model of an adsorption column.** R.L. Wu, M.F. Cuel, C.O. Hokka, M. Barboza, W.H. Kwong
- PA035 **Industrial air separation using pressure swing adsorption: A fluidization study.** D. A. Ferreira, P. Taveira, A. Mendes
- PA036 **Study of the adsorption process of methanol and water over a SAPO-18 catalyst by means of pulse techniques.** Irene Sierra, Andrés T. Aguayo, Javier Ereña, Ana G. Gayubo, Javier Bilbao
- PA037 **Optimization of mobile phase composition for preparative separation of profens enantiomers by chiral liquid chromatography.** António E. Ribeiro, Nuno S. Graça, Luís S. Pais, Alirio E. Rodrigues
- PA038 **Uncertainty assessment on chromatographic separation of lapachol.** Amaro G. Barreto Jr, Evaristo C. Biscaia Jr
- PA41 **Gas filtration at high pressure.** Ana B.N. Brito, Sandra G.R. Azevedo, Edison Ricco Jr, José R. Coury, Mônica L. Aguiar
- PA43 **Kinetics of carbon dioxide absorption with chemical reaction in piperidine aqueous solutions.** Alicia G. Abuin, Diego Gómez-Díaz, José M. Navaza, Isabel Vidal
- PA44 **Absorption of carbon dioxide by MDEA aqueous solutions in a bubble column reactor.** Estrella Álvarez, Diego Gómez-Díaz, M. Dolores La Rubia, José M. Navaza, Lourdes C. Quintáns-Riveiro
- PA45 **Simulation of membrane separations using a modified Maxwell-Stefan model.** Paulo Brito, Licínio M. Gando-Ferreira, António Portugal
- PA46 **Influence of pyrolysis parameters on the performance of CMSM.** Marta C. Campo, Tymen Visser, Kitty Nymeyer, Matthias Wessling, Fernando D. Magalhães, Adélio M. Mendes
- PA47 **Low-temperature water-gas shift reaction in a Pd-Ag "finger-like" configuration membrane reactor.** Diogo Mendes, Silvano Tosti, Fabio Borgognoni, Adélio M. Mendes, Luis M. Madeira,
- PA48 **Influence of pressure on the yield of supercritical CO₂ extraction of linseed (*Linum usitatissimum* L.) oil and investigation of its antioxidant potential.** E. L. Galvão, J. A. C. Barros, A. V. B. Moreira, H. N. M. Oliveira, E. M. B. D. Sousa
- PA49 **Supercritical fluid extraction of grape seed oil using an enzymatic pre-treatment.** C P. Passos, R.M. Silva, F.A. da Silva, M.A. Coimbra, C.M. Silva
- PA50 **Measurement and correlation of solubility of quinzarin and 1-(methylamine)anthraquinone in supercritical carbon dioxide.** José P. Coelho and Andreia F. Mendonça
- PA51 **Supercritical antisolvent process applied to the pharmaceutical industry.** A. Tenorio, M. D. Gordillo, C. M. Pereyra and E. J. Martínez de la Ossa

- PA52 **Solvent effects on ionic association of 2,6-lutidinium chloride salt at 60.00 °C: A QSPR study.**
M. Reis, L. Moreira, R. E. Leitão, F. Martins
- PA053 **Modelling of the solvent extraction equilibrium of cadmium (II) in neutral chloride medium using Cyanex 923.** A.A. Leopold, A. Fortuny, M.T. Coll, N.S. Rathore and A.M. Sastre
- PA054 **Models to correlate the surface tension of solvent mixtures.**
Alicia G. Abuín, Diego Gómez-Díaz, José M. Navaza, Isabel Vidal
- PA055 **Thermodynamic analysis of surface tension in water / pyrrolidone system.**
Alicia G. Abuín, Antonio Blanco, Diego Gómez-Díaz, José M. Navaza, Isabel Vidal
- PA058 **Volumetric properties for the ternary mixture methanol-formamide-acetonitrile.**
Nelson Nunes, Filomena Martins, Lídia Pinheiro, Ruben E. Leitão
- PA059 **An effective method for calculation of homogeneous azeotropes in reactive and nonreactive mixtures.** Adrian Bonilla-Petriciolet, Gustavo A. Iglesias-Silva, Jose Enrique Jaime-Leal
- PA060 **A portable library for equilibrium and thermodynamics properties calculations based on object oriented paradigms.** Joana C. Vieira, Miguel A. Mesquita, Francisco A. Da Silva
- PA061 **Thermophysical properties of aqueous solutions of CNTs in the temperature range (298.15-343.15) K.** Filipa A.M.M. Gonçalves, Abel G.M. Ferreira, Isabel M.A. Fonseca J. Pomozhi, Mónica S.A.O. Correia, Subramani Kanagaraj
- PA062 **Modelling solubility of amino acids in aqueous solutions.** Carlos M. Silva, Simão A. Alves, Francisco A. Da Silva
- PA064 **Liquid-liquid equilibria, surface and interfacial tension for water+n-butyl acetate+1-propanol at 323.15 K.** H.F. Costa, I. Johnson, F.M. Gonçalves, Abel G.M. Ferreira, Isabel M.A. Fonseca
- PA065 **Thermodynamic analysis of leather tanned with different tanning agents.**
Mónica Rosas, Valentina Domingues, Teresa Oliva-Teles, Paulo Silva, António Crispim
- PA067 **Effect of isoctane on vapor-liquid equilibria of water and TEG solution.**
Khosravanipour Mostafazadeh, M. R. Rahimpour, A. Shariati
- PA069 **Optimized force fields for predicting vapour-liquid equilibria of binary mixtures involving alkanes and xenon at low temperatures.** Carlos E.C. Laginhas, A.J. Palace Carvalho, J.P. Prates Ramalho, Luís F.G. Martins
- PA070 **Kinematic viscosity of ternary solutions of ethanol, glycerol and water from 293.1 to 318.1 K.**
R. Moreira, F. Chenlo, D. Le Gall
- PA074 **Physicochemical characterization of surface sized paper surfaces.** Isabel Moutinho, Margarida Figueiredo, Paulo Ferreira
- PA075 **Sub-micron size aragonite synthesis by double-jet precipitation.**
Carmencita Mateescu, Mihaela Mihai, Raluca Isopescu, Irinela Chilbon, Florina Branzoi
- PA077 **Response surface methodology applied to the study of temperature and concentration effect on the rheology of cupuassu pulp (*Theobroma grandiflorum* Schum).** Gilvanete M. Ferreira, Maria José O. C. Guimarães, Maria Cristina A. Maia
- PA078 **Effect of temperature on rheological properties of Surinam cherry pulp.**
Edimir A. Pereira, Francisca Marta N. de Oliveira, Maia José de O.C. Guimarães, Maria Cristina A. Maia
- PA079 **Change on rheological properties of mushroom cream due to freezing process.**
E. Álvarez, M.A. Cancela, N. Delgado-Bastidas, R. Maceiras
- PA082 **Trypsin purification by using *Cratylia mollis* trypsin inhibitor immobilized on paramagnetic particles.**
Rocha, M.E.B., Chaves, M.E.C., Bezerra, R.S., Paiva P.M.G., Carvalho Jr., L.B., Carneiro-da-Cunha, M.G.
- PA083 **The effect of operating conditions on styrene bulk polymerization in a spinning disk reactor.**
S. Mohammadi, M. Alavi, M.R. Moghbeli
- PA084 **Synthesis of crosslinked poly(vinyl chloride): Study of polymer properties.**
Tomás, A., Gil, M.H., Bordado, J.C., Gonçalves, P., Rodrigues, P.
- PA085 **Experimental study of the TEMPO mediated copolymerization of styrene with divinylbenzene.**
Miguel A.D. Gonçalves, Rolando C.S. Dias, Mário Rui P.F.N. Costa
- PA086 **The effect of shear on styrene polymerization.** S. Mohammadi, M.R. Moghbeli, M. Alavi
- PA087 **Novel stimulus responsive coating for polystyrene particles.** Bruno Miguel Reis, Simon Biggs

POSTERS SESSION II "MULTI-SCALE AND/OR MULTI-DISCIPLINARY APPROACH TO PROCESS-PRODUCT INNOVATION"

- PB001 **Optimisation of a package production process for the implementation of a "Total Productive Maintenance".**
Ana Rita A. Seita, Rui Alves, M. Mercedes Esquivel

- PB002 **Technology prospecting for a model of industrial ecology based on microalgae biomass in Rio de Janeiro.**
Suzana Borschiver, Ofélia de Queiroz Araújo and Claudia Morgado
- PB003 **Automatic complex installation to ensure the microclimates in grafting some fruit-growing, dendrological and forest species with difficult propagation.** Ioana Predescu, Ioana Persu
- PB004 **Rheological and thermodynamic study on a biodiesel production process.**
Álvaro F. C. Vaz, Andreia C.S. Fial, Ana P. R. Gomes, Rogério M. S. Simões
- PB005 **Optimal parameters to produce microbial biomass to degrade hydrocarbons.**
Leidy L. López H., Marcia E. Ojeda M., Miguel A. Hernández R., Victor M. Villegas C., Juan Barajas F., África Ángeles P.
- PB006 **Comparison of ozonolysis and steam explosion of wheat straw to obtain bioethanol.**
M. Teresa García, Sílvia Bolado, Gerardo González, Israel López, Isabel Catalina
- PB007 **The vegetative cycle of *Lavandula luisieri* – influence on essential oils and antioxidants.**
Ana Rita B. Mancelos Beirão, M. Gabriela Bernardo-Gil, Humberto E. Ferreira
- PB008 **Pectin extraction from guavas using response surface methodology.**
Cláudia L. Munhoz, Eliana J.Sanjinez-Argandoña, Manoel S. Soares Júnior
- PB009 **Study on caqui (*Diospyros Kaki* L) fruit osmotic dehydration treatments.**
Paulo M. Castro, Eliana J. Sanjinez-Argandoña, Iriani R. Maldonade
- PB010 **Purification of ascorbate oxidase from *Cucurbita maxima* in perforated rotating disc contactor using PEG/citrate system.**
Tatiana S.Porto , Petrus P. Marques, Camila S. Porto, Maria T.H. Cavalcanti, José L. Lima-Filho, Attilio Converti , Ana L.F. Porto, Adalberto Pessoa-Jr.
- PB011 **High pressure treatment of grape seed to enhance the yield of oil extraction.**
Ana L. Magalhães, Cláudia P. Passos, Jorge A. Saraiva, Manuel A. Coimbra, Carlos M. Silva
- PB012 **Relations between oxidative stability and antioxidant content in vegetable oils using an accelerated oxidation test – Rancimat.** M. Mercedes Esquivel, M. Albertina Ribeiro, M. G. Bernardo-Gil
- PB013 **Experimental sorption isotherms of loquat and quince fruits in the range from 20 to 65 °C.**
R. Moreira, F. Chenlo, M.D. Torres, N. Vallejo
- PB014 **The influence of sucrose osmotic pretreatment on the kinetics of rehydrated dried chestnuts.**
R. Moreira, F. Chenlo, L. Chaguri
- PB015 **Production of polygalacturonase from *Coriolus versicolor* grown on tomato pomace and its chromatographic behaviour on immobilized metal chelates.** Maria do Ros-rio Freixo, Amin Karmali, José Maria Arteiro
- PB016 **Biological deacidification of wine – must.** Susana C. Ribeiro, Ana Xavier, Inês Portugal, Filipe Centeno
- PB017 **Using GC-MS and multivariate statistics to safeguard the identity of Madeira wine: a preliminary study.**
Ana C. Pereira, Marco S. Reis, Pedro M. Saraiva, José C. Marques
- PB018 **A new strategy for using banana as an ingredient in the brewing process.**
Giovani B.M. Carvalho, Daniel P. Silva, António A. Vicente, Maria das Graças A. Felipe, José A. Teixeira, Jo, o B. Almeida e Silva
- PB019 **β -Galactosidase from *Aspergillus oryzae* immobilized onto different magnetic supports: A comparative experimental and modeling study of the galactooligosaccharides production.** David F.M. Neri, Victor M. Balcão, Rafael S. Costa, Eugénio C. Ferreira, Duarte P.M. Torres, Lígia R. Rodrigues, Luiz B. Carvalho Jr, José A. Teixeira
- PB020 **Microencapsulation of thyme oil by coacervation.** Isabel M. Martins, Filomena Barreiro, Alirio E. Rodrigues
- PB021 **Multivariate analysis of DNA microarrays.** Marco S. Reis
- PB022 **Evaluation of olive oil-lemon juice emulsion stability through digital image analysis.**
Kelly A. Silva, Maria H. Rocha-Leão, Maria A.Z. Coelho
- PB023 **Integration of a Digital Holographic Microscope in a single use bioreactor for animal cell culture: the promising benefits of an original multidisciplinary approach for bioprocesses.**
Andreia S. Pedregal, Daniel R. Sousa, Serge Lowagie, Brahim Jawad, Catherine Yourassowski, Frank Dubois and John Wérenne
- PB024 **Looking toward new biomolecules: IR and 1H NMR spectroscopies and DFT calculations on N⁷-benzoyl-L-Arginine ethyl ester hydrochloride.** Ana C. Fonseca, Susana Jarmelo , Rui A. Carvalho, Rui Fausto, Maria H. Gil, Pedro Simões
- PB025 **CFD analysis of blood rheology.** Filipa Carneiro, Vasco Gama Ribeiro, José C.F. Teixeira, Senhorinha F.C.F Teixeira
- PB026 **Study of cerebrospinal fluid dynamics in a computational model of stenosed aqueduct.**
N.Masoumi, D. Bastani, S.Najarian, F.Framanzad, A.S.Seddighi
- PB027 **Multiphase flow inside the Volumatic® spacer: a CFD approach.**
Sofia Abreu, Luís F. Silva, Henedina Antunes, Senhorinha F. C. F. Teixeira

PB028	Computational Fluid Dynamics (CFD) behavior of water flow in a packed column filled with spherical particles. Bardia Hasanzadeh, Morteza Baghalha, Hamed Shahsavani, Seyed A. Monemian
PB029	Boundary conditions effect on CFD simulation of heat transfer in plate type heat exchanger. M.R. Khosravi Nikou
PB030	Application of CFD in the study of supercritical fluid extraction with structured packing – pressure drop calculations. João B. Fernandes, Pedro C. Simões, José P.B. Mota, Esteban Saatdjian
PB031	Application of CFD techniques in a high-flux riser-reactor flow prediction. Rosa, L.M., Bastos, J.C.S.C., Mori, M., Martignoni, W.P.
PB032	Gas holdup in laboratory scale bubble column: CFD simulations vs. measurements. M. Simcik, L. Kulaviak, J. Havlica, M. C. Ruzicka, J. Drahoš, J. Teixeira
PB033	Healthcare Decision Support System. Conceição Granja, Adélio Mendes, Paulo Cruz
PB034	Investigation of the drug delivery behavior of porous hydroxyapatite crystals. Muge Ekmen, Özlem Dogan, Mualla Öner
PB035	Optimization of hydroxyapatite synthesis. João F. P. Gomes, Cristina C. Granadeiro, Miguel A. Silva, Milton Hoyos, Rodrigo D. Silva, Filipe Antunes, José E. Amaral, Teresa Vieira
PB036	Investigation of Silica Particle Structure Containing Metallocene Immobilized by a Sol-Gel Method. Adriano G. Fisch, Nilo S.M. Cardozo, Argimiro R. Secchi, Nadya P. da Silveira, João H.Z. dos Santos
PB038	Studies on developing the red mud capability of binding the tannery residual chromium. Mihaela-Doina Ghiga, Laurentiu Filipescu, Ion Ion, Zoltan Ecsedi, Marian Crudu
PB041	Statistics model and optimization of uranium extraction in ultrasounds field in sulphuric acid medium. Eugenia Panturu, Rozalia Radulescu, Antoneta Filcenco Olteanu
PB042	Stability of binary mixtures in a novel combustor conical spouted bed with a draft tube of different length. Maria J. San José, Sonia Alvarez, Alvaro Ortiz de Salazar, Alberto Morales
PB043	Simulation of maleic anhydride production from n-butane in a two moving bed reactors system. F. Salehi, M. Soltani, H. Shahsavani, S.A. Monemian, M. Torabi-Angaji
PB044	Production of hydrogen by methane steam reforming coupled with CO₂ sorption. Eduardo L. G. Oliveira, Carlos A. Grande, Alirio E. Rodrigues
PB045	Adsorption of CO₂, CH₄ and N₂ on titanosilicate adsorbent. Simone Cavenati, Carlos A. Grande, Alirio E. Rodrigues
PB046	Modelling of light olefin transformation over ZSM-5 zeolites with different acid strengths. P. Oliveira, P. Borges, R. Ramos Pinto, M.A.N.D.A. Lemos, F. Lemos, F. Ramôa Ribeiro
PB047	Carbon dioxide reforming of methane over Ni²⁺/Al₂O₃ in fluidized-bed reactor. José A. Pacífico, Ana C. Cabral, Nelson M.L. Filho, Augusto Knoechelmann, César A.M. Abreu
PB048	New polystyrene-based polymers as supports for ethylene polymerisation. Joana Tudella, Maria Rosário Ribeiro, Henri Cramail and Alain Defieux
PB049	Cure of a fiberglass-vinyl ester I beam composite: a new heating strategy. Lizandro S. Santos, Rogério L. Pagano, Verônica M.A. Calado, Evaristo C. Biscaia JR.
PB050	Preparation of polymeric hydrogel microparticles for textile applications. Carvalho, A., Vieira, R. and Gil, M. H.
PB051	A shape selective MOF material for the adsorptive separation of linear and branched hexane isomers. Patrick S. Bárcia, Fatima Zapata, José A. C. Silva, Alirio E. Rodrigues, and Banglin Chen
PB052	Photocatalytic oxidation of clofibrac acid using nanocrystalline sol-gel TiO₂ under visible irradiation. Cláudia G. Silva, Joaquim L. Faria
PB053	Catalytic cracking of n-decane as model molecule of Fisher-Tropsch synthesis. N. Fonseca, S. Laforge, P. Magnoux, F. Lemos, F. Ramôa Ribeiro
PB054	Optimization tools and economical issues in the design of a residential cogeneration system. Luís A.S.B. Martins, Celina P. Leão, Angela M. Silva, Manuel L. Nunes, Senhorinha F.C.F. Teixeira

**POSTERS SESSION III "SYSTEMATIC METHODS AND TOOLS FOR MANAGING THE COMPLEXITY"
& "INTEGRATION OF LIFE SCIENCES AND ENGINEERING"**

PD001	Model-based optimization of a semi-batch industrial polymerization process. Teodora Miteva, Nadja Hvala, Rodrigo Alvarez, Dolores Kukanja
PD002	Reacting media models building optimization. Chernykh I.G., Stoyanovskaya O.P., Zasyapkina O.A.

PD003	Multiobjective optimization of the benzene nitration process. Paula A. G. Portugal, Marco S. Reis, Cristina M. S. G. Baptista
PD004	Dynamic optimization of fed-batch alcoholic fermentation. Patrícia C. S. Borges, Adriene A. Pfeifer, Fran Sérgio Lobato, Eloizio J. Ribeiro, Valéria V. Murata
PD006	Control and optimization algorithms proposed for two layer approach: application to a three-phase catalytic reactor. Mylene C.A.F. Rezende, Aline C. Costa, Rubens Maciel Filho
PD008	Selection of controlled variables for an industrial distillation column with heat pump. Mojgan Ebrahiminejad and Reza Eslamloueyan
PD009	An SPC inspired MPC formulation for quality variables. Belmiro P.M. Duarte, Nuno M.C. Oliveira, João F.M. Gândara
PD011	The Importance of the simulation in refinery processes. Fernando G. Martins, Marta I. M. S. Cruz, Manuel L. Tavares, Manuel A. N. Coelho
PD012	Dynamic simulation of CO₂ absorption from post combustion gases. Greer T., Bedelbayev, A., Igreja, J.M., Gomes, J. F., Anastácio, P, B. Lie
PD013	Three-dimensional gas-solid fluidized bed simulation based on kinetic theory of granular flow. Fábio Marini, Maria G. E. Silva, Milton Mori
PD014	Writing a software package for simulation of the three-dimensional structure of paper. Eduardo L.T. Conceição, António A.T.G. Portugal
PD015	3D simulation of multiphase flow in large-scale venturi scrubbers. Ângela M. Silva, Senhorinha F.C.F. Teixeira, José C.F. Teixeira
PD016	Numerical simulation of supercritical extraction processes. Carlos M. Silva, Claudia P. Passos, Manuel A. Coimbra, Francisco A. Da Silva
PD018	Influence of a heated brine spray system on the dynamic model of an integrated recrystallization industrial process. Raquel D. Moita, Henrique A. Matos, Cristina Fernandes, Clemente P. Nunes, Mário J. Pinho
PD019	Non isothermal phenomenological model of an enological fermentation: modelling and performance analysis. Pablo M. Aballay, Gustavo J.E. Scaglia, Martha D. Vallejo Oscar A. Ortiz
PD020	Model aided design of gas-lift reactor for oxidation reaction with fast reversible catalyst deactivation. Zuzana Gogová, Jiří Hanika
PD021	A new hybrid modeling methodology based on delayed differential equations: application to antibody expression by <i>Pichia pastoris</i>. M. von Stosch, R. Oliveira, J. Peres, S. Feyo de Azevedo
PD022	Adaptive evolutionary design of extractants for the separation of organic compounds from aqueous streams by liquid extraction. Juan Carlos Serrato B., Jonatan Gómez P., Luis A. Caicedo M.
PD023	Heuristic methods to scheduling operations in parallel machines. José A.V. Oliveira
PD024	Multiproduct pipeline with inventory management: the CLC's case study. Susana Relvas, Ana Paula F.D. Barbosa-Póvoa, Henrique A. Matos João Fialho
PD025	Water use optimization in wine industry. Design of the water and the wastewater treatment network. Patricia Oliver, Rosa A. Rodriguez, Stella M. Udaquiola
PD026	Optimal heat exchanger network synthesis including the detailed equipment design using particle swarm optimization. M.A.S.S. Ravagnani, A.P. Silva, E.C. Biscaia Jr. and J.A. Caballero
PD027	Neural network control for riser- slugging suppression. R. Eslamloueyan and E. Hosseinzadeh
PD028	Use of Kohonen neural network in the sensorial analysis of <i>Malpighia glabra</i> L. wines. Cleber Gustavo Dias, José Carlos Curvelo Santana, Santana; Roberto Rodrigues de Souza, Elias Basile Tambourgj
PD029	Study of aromatic recovery by extractive distillation. Mariana A.N. Moreira, Helena M.M. Campos, Sónia C.F. Santos, Ana R. Marques, Manuel L.C. Tavares, Paula C. P. Silva, Luísa A.C.N.Gomes
PD030	Pore size distribution of baker's yeast evaluation using x-ray micro-tomography. Frédéric Debaste, Angélique Léonard, Véronique Halloin, Benoît Haut
PD031	Drop distribution determination in a liquid-liquid dispersion by image processing. Ribeiro M. M. M., Gomes E.F.G. , Brás, L.M.R., Guimarães M. M. L.
PD032	Bright field versus phase contrast microscopy in activated sludge image acquisition methodologies. D.P. Mesquita, O. Dias, A.L. Amaral, E.C. Ferreira
PD033	Multivariate monitoring of an activated sludge process for biological treatment of a synthetic wastewater effluent. A.M.A. Dias, A. Paulo, D. Mesquita, M. M. Alves, E. C. Ferreira

- PD034 **Usefulness of PCR-DGGE for monitoring lactic acid bacteria succession during fermentation of grass silage.**
I.R. Amado, C. Fuciños, P. Fajardo, N. Pérez and L. Pastrana
- PD035 **Thermolithography, a rapid prototyping process: Influence of physical and operational parameters.**
Rodrigo A. Rezende, Suzimara Andrade, André Luiz Jardini, Marco Antonio Scarparo, Rubens Maciel Filho
- PD037 **Functional screening of a metagenomic library obtained from soils and water of S. Domingo's mine.**
Paula Sá-Pereira, Susana M. Paixão, Lina Baeta-Hall, Maria C. Sáágua, Ana M. Anselmo, José C. Duarte
- PD038 **Computer-assisted structural and adsorptive characterization of carbon nanotubes for adsorptive and environmental applications.** Isabel A.A.C. Esteves, Fernando J. A. L. Cruz, José P. B. Mota, Sandeep Agnihotri, Erich A. Muller
- PD039 **Equilibrium and kinetics modelling of separation of Cr(III)/Cu by a chelating resin from industrial effluents.**
Licínio M. Gando-Ferreira, Margarida M. Quina and Rosa Quinta-Ferreira
- PD040 **Hydrogen production from methane steam reforming: parametric optimization of a membrane reactor.**
Leandro C. Silva, Carla E. Hori, Adilson J. Assis
- PD041 **Evaluation of redundant measurements on the air quality monitoring network of Lisbon and Tagus Valley.**
José C.M. Pires, Fernando G. Martins, Maria C.M. Alvim-Ferraz, Maria C. Pereira
- PD042 **Comparison of dynamic data reconciliation estimators and gross errors detection strategies.**
Andrea C. Farias, Ricardo G. Durański, Argimiro R. Secchi
- PD043 **Robust design and operation of two- and three-Column compact SMB process for binary and ternary separations.**
Rui C.R. Rodrigues, João M. M. Araújo, José P.B. Mota
- PD044 **Simulated Moving Bed Chromatography for environmental gas-phase applications.** Isabel A.A.C. Esteves, José P.B. Mota
- PD045 **A streamlined two-column SMB process for chiral separation.** João M.M. Araújo, Rui C.R. Rodrigues, José P.B. Mota
- PD046 **Automated iterative refinement of adsorption isotherm models for simulated moving-bed operation based on cyclic steady state data.** João M.M. Araújo, Rui C.R. Rodrigues, José P.B. Mota
- PD047 **Risk estimation of compost application in agriculture: evaluating metal accumulation and biotransfer.**
Millic Gil, Marta Herva, Amaya Franco, Enrique Roca
- PD048 **In what way may recent laws on chemical substances promote scientific research.**
Carlos Lopes, Patrícia Correia, Carla Raminhos, João Lourenço
- PD049 **Revitalization of chemical processes - one way to make possible the competitiveness.**
Erika Christina Ashton Nunes Chrisman
- PD050 **Simulation optimizes feedback control on the temperature of a heterogeneous batch reactor.** M. Çetin Koçak
- PE081 **Comparison of the operation of a membrane bioreactor for municipal wastewater treatment with different membrane modules.** Iglesias A., Barcón T., Artiga P., Garrido J.M., Omil F.
- PE082 **Degradation of acid, basic and reactive dye mixture in a continuous bioreactor.**
Palma, C., Contreras, E., Sepúlveda, L., Carvajal, A.
- PE083 **Optimization of industrial textile dye colour removal by *Pseudomonas oleovorans*.**
Edgar Silveira, Petrus P. Marques, José L. Lima-Filho, Ana L.F. Porto, Elias B. Tambourgi
- PE084 **Phosphorus removal from water by polyolefins activated with Al₂O₃.**
M. Oliveira, J.M. Nobrega, A. V. Machado, R. Nogueira
- PE087 **Biodegradation of fuel oil hydrocarbons by a bacterial consortium and strategies to enhance process efficiency.**
Marta Pazos, Francisco Deive, M^{ra} Teresa Alc-ntara, María A. Longo, M^{ra} Angeles Sanrom-n
- PE088 **Fate of aniline and sulfanilic acid under denitrifying conditions.** Frank P. van der Zee, Raquel Pereira, M. Madalena Alves
- PE089 **Application of an *E. coli* biofilm supported on kaolin to the removal of Cd(II), Cr(VI), Fe(III) and Ni(II) from aqueous solutions.** Cristina Quintelas, Zélia Rocha, Bruna Silva, Bruna Fonseca, Hugo Figueiredo and TeresaTavares
- PE090 **Reactive dyestuff removal by cork residues.**
Isabel Torres, Ana Guimaraes, Valentina M.F. Domingues, Cristina M.F. Delerue-Matos
- PE091 **Influence of airflow rate on soil remediation using soil vapour extraction.**
J.T. Albergaria, C.M. Delerue-Matos, M.C.M. Alvim Ferraz
- PE092 **Anthracene and lead adsorption on a Portuguese soil - competitive studies.**
Aline S. Teixeira, Bruna Fonseca, Maria do Carmo C.R. Peralba, Teresa Tavares
- PE093 **Relative hydrophobicity of (PEG or Ucon)-salt ATPSs.**
Sara C. Silvério, Pedro P. Madeira, Oscar Rodríguez, José A. Teixeira, Eugénia A. Macedo

- PE094 **Surface modification of thermoplastic polyurethane in order to enhance reactivity.**
P. Alves, Jean-Pierre Kaiser, Janne Haack, Astrid Rota, Arie Bruinink, M.H. Gil
- PE095 **Adhesion to and viability of Salmonella Enteritidis on food contact surfaces.**
Pilar Teixeira, Sónia Silva, Fátima Araújo, Rosário Oliveira, Joana Azeredo
- PE096 **Biofilms formation and biocorrosion in coupons exposed in marine environment.**
Maria Alice G. de Andrade Lima, Sara H. de Oliveira, Livia A. Santos, Glória M^a Vinhas, Severino L. Urtiga F., Alice Alexandra S. Vieira, Mitsue M. Nakazawa, Francisca Pessoa de França
- PE097 **Drinking water biofilm monitoring by Propella™ and Flow Cell bioreactors under different operating conditions.**
Lúcia C. Simões, Manuel Simões, Maria J. Vieira
- PE098 **Kinetics of Pseudomonas fluorescens inactivation with ortho-phthalaldehyde.**
Manuel Simões, Maria O. Pereira and Maria J. Vieira
- PE099 **Inocula selection for VOC removal in the non-clogging Biological Plate Tower.** Manuel Mota, João M. Peixoto
- PE101 **Environmental conditions in Nannochloropsis gaditana cultivation for effective aquaculture live feed.**
Marta H.F. Henriques, Ana I.C. Silva, Sara H.N. Vicente, Jorge M.S. Rocha
- PE102 **On-line monitoring of penicillin G acylase production using a fuzzy logic algorithm.**
Edson R. Nucci, Vanessa R. Souza, Rosineide G. Silva, Raquel L.C. Giordano, Roberto C. Giordano, Antonio J.G. Cruz
- PE103 **Monitoring by HPLC-PDA impurities generated by forced degradation conditions on an active pharmaceutical ingredient.**
Dália M.D.Barbosa, Teresa Alves, Lara Ribeiro, Joaquim P. Queiroga, José C. Menezes
- PE104 **FT-IR spectroscopy and chemometrics in clinical microbiology.** O. Preisner, R. Guiomar, J. Machado, J.C. Menezes, J.A. Lopes
- PE105 **Risk quantification of microbiological contamination in aseptic processes.**
Ana M. Quinto, Pedro A. Barata, José M. Martins, José C. Menezes
- PE106 **Novel method for accelerated analytical control of biological (bacteriological) agents.** Valery P. Nesterenko
- PE107 **Influence of phosphate and maltose concentrations in the dextran sucrose production by Leuconostoc m. B-512-f. M.**
Hernández, M. Peña Miranda, G. González Benito

POSTERS SESSION IV "INTEGRATION OF LIFE SCIENCES AND ENGINEERING"

- PE001 **Study of volumetric oxygen transfer coefficient in a Taylor vortex flow bioreactor.**
Patrícia Ap. Santiago, Cláudio A.T. Suazo, Roberto C. Giordano
- PE002 **Studies on synthetic medium composition for continuous production of clavulanic acid by Streptomyces clavuligerus.**
L.C.G. Domingues, J.C. Teodoro, C.O. Hokka, A.C. Badino-Junior, M.L.G.C. Araujo
- PE003 **Effect of physicochemical properties of solvents on clavulanic acid extraction from fermentation broth.**
L.M. Brites, J. H. Oliveira, C.O. Hokka, M. Barboza
- PE004 **Kinetic production of the antioxidant ellagic acid by solid state culture.**
Juan S. Hernández-Rivera, Antonio F. Aguilera-Carbo, Raul Rodríguez-Herrera, Jose L. Hernández and Cristobal N. Aguilar
- PE005 **Biorefinery of pulp and paper hardwood spent sulfite liquor.**
Ana S.N. Pontes, Mariana F. Correia, Ana M.R.B.Xavier, Dmitry Evtyugin, António Prates
- PE006 **Enzymatic interesterification of milkfat with soybean oil using lipases of different sources immobilized in polysiloxane-polyvinyl alcohol hybrid matrix.** Ariela V. Paula, Gisele F. M. Nunes, Josiane L. Silva, Heizir F. Castro, Júlio C. Santos
- PE008 **Enzymatic hydrolysis of Buriti (Mauritia vinifera) oil for obtainment of beta-carotene.**
Bernardo Dias Ribeiro, Maria Alice Z. Coelho, Daniel W. Barreto
- PE009 **Enzymatic inulin hydrolysis using PVA-base matrices.** Pedro Fernandes, Stefano Cattorini, Joaquim M.S. Cabral
- PE010 **Fatty acid esters enzymatic production for food applications.**
Nair A.S. Neta, João A.C. Cunha, Lígia R.M. Rodrigues, José A. Teixeira
- PE011 **Kinetic study of enzymatic biodiesel production from macauba acid oil using Candida antarctica B lipase immobilized in coconut fiber.** Rafaella F. Nascimento, Ana I. S. Brígida, Carla C. M. Silva; Maria Helena Rocha-Leão, Luciana R. B. Gonçalves, Maria A. Z. Coelho, Suely P. Freitas
- PE012 **Enzymatic resolution and separation of sec-alcohols based on sustainable acylating agents.**
Carlos M. Monteiro, Nuno M. T. Lourenço, Carlos A. M. Afonso
- PE013 **A graphical approach for rationalization of bi-enzymatic reactions based on a kinetic model.**
Wouter Van Hecke, Aditya Bhagwat, Roland Ludwig, Jo Dewulf, Dietmar Haltrich and Herman Van Langenhove

- PE014 **Enhanced production of recombinant staphylokinase: An experimental design approach.**
Arshad Jawed, K. L. Dikshit, Debendra K. Sahoo
- PE015 **Biocatalysis in organic media by using calixarene-myoglobin complex with pseudoactivity of peroxidase.**
Magda C. Semedo, Amin Karmali, Patrícia D. Barata and José V. Prata
- PE016 **Immobilization of Lecitase® Ultra in XAD-2 and XAD-4 under ultrasound irradiation.**
Karen M. Gonçalves, Ivelize Babicz, Ingrid C. R. Costa, Rodrigo O. M. A. de Souza, Octavio A. C. Antunes
- PE017 **Immobilization of Lipozyme TL 100L on Eupergit®.**
Ingrid C. R. Costa, Ivelize Babicz, Karen M. Gonçalves, Rodrigo O. M. A. De Souza, Octavio A. C. Antunes
- PE018 **Use of molecular biology techniques to compare the bacterial community diversity of a lab-scale biofilter and an industrial biofilter treating high loads of H2S.**
Roger Rovira, Juan P Maestre, Xavier Gamisans, Javier Lafuente, Jordi Mas, David Gabriel
- PE019 **Immobilization of Lipozyme TL 100L in Activated Coal and PANI Under Ultrasound Irradiation.**
Ivelize Babicz, Karen M. Gonçalves, Ingrid C. R. Costa, Rodrigo O. M. A. de Souza, Octavio A. C. Antunes
- PE020 **Production and chromatographic behaviour of polygalacturonase from *Pleurotus ostreatus* on immobilized metal chelates.** Maria do Rosário Freixo, Amin Karmali, José Maria Arteiro
- PE021 **Release of ibuprofen, naproxen and flurbiprofen from ethylcellulose microparticles.**
Mariana Sousa Costa, M. Margarida Cardoso
- PE022 **Procyanidin Average Degree of Polymerization.**
Cláudia P. Passos, Susana M. Cardoso, António S. Barros, Carlos M. Silva, Manuel A. Coimbra
- PE023 **One-step purification of hemoglobin from human erythrocytes by using a novel chromatographic matrix based on polymer-bound calix[6]arenes.** Magda Semedo, Amin Karmali, Patrícia D. Barata and José V. Prata
- PE024 **Kinetic resolution of 1,2-epoxyhexane by whole cells of *Rhodotorula glutinis* in a two-liquid phase system.**
Michiaki Matsumoto, Takashi Sugimoto, Naoya Wada and Kazuo Kondo
- PE026 **A multipurpose hydrogel system for biocatalyst immobilization.**
P. Fernandes, Stefano Cattorini, Filipe Carvalho, Marco P.C. Marques, Susana Bernardino, Filipa Maduro, Sara Badenes, Dragana Barros, Carla C.C.R. Carvalho, Luis P. Fonseca, Joaquim M.S. Cabral
- PE027 **The effects of operation parameters on the electro dialysis recovery of citric acid from dilute solutions.**
Altan G.venÁ, Beyhan Hacıođlu
- PE028 **Influence of operational fed-batch strategies on heterologous *Rhizopus oryzae* lipase production in *Pichia pastoris* system using mixed substrates.** Carolina Arnau, RamÚn RamÚn and Francisco Valero
- PE029 **Adaptive control of glycerol and methanol feeding in recombinant *Pichia pastoris* cultures: Impact on antibody titre.**
Filipe Ataíde, Ana R. Ferreira, João J. Clemente, António E. Cunha, Rui Oliveira
- PE030 **Study of the influence of wetting and emulsifying agent in the activity of crude xylanase of *Bacillus pumilus* CBMAI 008 for use in bioscouring.** Kátya R. Freitas; Marta C.T. Duarte; Selene M.A.Guelli U. Souza; Antonio Augusto Ulson de Souza
- PE031 **Yarrowia lipolytica as biocatalyst for crude oil degradation.**
Roberta R. Ribeiro, Tatiana F. Ferreira, Priscilla F.F. Amaral, Maria Alice Z. Coelho, Maria Helena M. Rocha-Leão
- PE032 **Hyperbaric bioreactors use with *Yarrowia lipolytica* cultures: cellular adaptation to hyperbaric conditions.**
Marlene Lopes, Nelma Gomes, Manuel Mota, Isabel Belo
- PE033 **Development of bioprocesses based in biphasic media involving the yeast *Yarrowia lipolytica*.**
Nelma Gomes, Cristiana Gonçalves, Marlene Lopes, Mário Aguedo, José A. Teixeira, Manuel Mota, Isabel Belo
- PE034 **Image analysis to investigate electrochemical stress in lipase production by *Yarrowia lipolytica*.**
André A. C. de Oliveira, Priscilla F.F. Amaral, Maria Alice Z. Coelho, Ofelia Q.F. Araújo
- PE035 **Liquid-liquid extraction in the presence of electrolytes of nisin and green fluorescent protein (GFPuv).** Priscila Gava Mazzola, Angela Faustino Jozala, Pérola de Oliveira Magalhães, Adalberto Pessoa Jr., Thereza Christina Vessoni Penna
- PE036 **Production and purification of frutalin, a potential cancer marker, in *Escherichia coli*.**
Carla Oliveira, Sofia M. Costa, José A. Teixeira, Lucília Domingues
- PE037 **Analysis of production of recombinant wild-type amidase from *Pseudomonas aeruginosa* in *Escherichia coli*.**
Patrícia A.T. Borges, Rita Pacheco, Amin Karmali
- PE038 **Mathematical modeling of recombinant *Escherichia coli* aerobic batch fermentations.**
Rafael S. Costa, I. Rocha and Eugénio C. Ferreira
- PE039 **Overproduction of protein-bound polysaccharides from a *Coriolus versicolor* strain by submerged fermentation.**
José M. Santos Arteiro, M. Ros-rio Martins, Cátia Salvador, Fátima B. Candeias, Sónia Martins, Amin Karmali, A. Teresa Caldeira

- PE040 **Production, purification and partial characterization of protein – bound polysaccharides from *Pleurotus ostreatus* and *Lentinula edodes*.** S. Silva, S. Martins and A. Karmali
- PE042 **Headspace - SPME as a screening system for yeast metabolic compounds - A case study.** Margarida Martins, Mariana Henriques, Joana Azeredo, Rosário Oliveira
- PE044 **Modeling of CHO cell culture process.** Srinivas Karra and M. Nazmul Karim
- PE045 **Model-based iterative design of dynamic experiments imodeling for optimization of a bioprocess for a recombinant protein production.** Cristaldi M. Grau R. and Martinez E.
- PE046 **Application of a fuzzy controller in the baker's yeast production process.** Gianni Braune Reis; Antonio José Gonçalves da Cruz
- PE047 **Kinetic models evaluation for fed-batch alcoholic fermentation.** Patrícia C.S. Borges, Fran S. Lobato, Eloízio J. Ribeiro, Valéria V. Murata
- PE048 **Production costs of wheat straw-based ethanol in Mexico. A parametric analysis.** Hector Gutierrez-Murillo, Gabriela Magaña, Arturo Sanche
- PE049 **Optimization of process variables and kinetics of the xanthan gum biosynthesis using sugar cane broth.** S. Faria, M.M. Resende, E. J. Ribeiro, F. P. de França and V.L. Cardoso
- PE050 **A new strategy for xylanase production using wheat straw autohydrolysis liquor as substrate.** Michele Michelin, Maria de Lourdes T. M. Polizeli, Denise S. Ruzene, Daniel P. Silva, António A. Vicente, João A. Jorge, Héctor F. Terenzi, José A. Teixeira
- PE051 **Approach model for simulation of the starch hydrolysis by α - amylase and alcohol production from manioc root starch.** JoséCarlos Curvelo-Santana, André Felipe H. Librantz, Elias Basile Tambourgi
- PE052 **RSM optimization of fractional precipitation and characterizing of amylase from maize malt.** Joana Paula Menezes Biazus, Taís Ramaiana Silva Guimarães, José Carlos Curvelo Santana, Santana; Roberto Rodrigues de Souza, Elias Basile Tambourgi
- PE053 **Butanediol production from eucalyptus hemicellulosic hydrolysate by fermentative process with *Klebsiella pneumoniae*.** Andreia D. Garcia, Adriana A. Rossi, Cláudia R. Barbosa, Arnaldo M.R. Prata
- PE054 **Hydrothermal treatments of corn cob and hemicelluloses extraction.** Denise S. Ruzene, Elif Yagiz, Dilek Marangoz, Daniel P. Silva
- PE055 **Bioconversion of xylose from lignocellulose wastes in raw materials for biochemical syntheses.** Beata Abraham, Alexandru Szep, Ildiko Miklossy, Emese Both, Maria Palfi, Szabolcs Lanyi
- PE056 **High ethanol productivity by fermentation of concentrated industrial substrates using ethanol-tolerant *Saccharomyces cerevisiae* strains.** Marisa R.M. Cunha, Pedro M.R. Guimarães, José A. Teixeira, Lucília Domingues
- PE058 **The effect of paper waste and food waste on biohydrogen production at mesophilic temperatures in batch reactors.** Anthony S. Danko, |Angela A. Abreu, and M. Madalena Alves
- PE059 **Optimization of ethanol production from cheese whey powder by *Kluyveromyces fragilis* using factorial design and response surface methodology.** Giuliano Dragone, Solange I. Mussatto, Jo, o B. Almeida e Silva, José A. Teixeira
- PE060 **PE060: Influence of extraction conditions on flavonoid yields from different Portuguese forest residues.** Patrícia Baptista, Cristina Gil, M. Emília Amaral, Fernanda Domingues, Ana Paula Duarte
- PE061 **Application of normalized Weibull model for describing the air drying of mango slices at different maturity stages.** Otoniel Corzo, Nelson Bracho, Carlos Alvarez
- PE062 **Determination of suitable thin layer model for air drying of mango slices.** Otoniel Corzo, Nelson Bracho, Carlos Alvarez
- PE063 **Analysis of cellular tissue of chestnuts during drying and rehydration process.** R. Moreira, F. Chenlo, L. Chaguri
- PE064 **Study of the influence of structured water on the drying of Baker's yeast.** Frederic Debaste, Veronique Halloin, Benoit Haut
- PE065 **Molecular biomarkers to characterize *Amanita ponderosa* mushrooms.** A. Teresa Caldeira, Cátia Salvador, Fátima Pinto, José M. Arteiro, M. Rosário Martins
- PE067 **Effect of micronized benzoic acid against *Alicyclobacillus acidoterrestris* in orange juice.** Kátia Yuri Fausta Kawase, Gerson Luiz Vieira Coelho, Rosa Helena Luchese
- PE068 **Identification of coalho cheese microbiot of districts of Pernambuco, Brazil.** Torquato M. S. Neto, Maria T.C.V. Soares, José A.C. Teixeira, Lucília M.A.R. Domingues, José. L. Lima-Filho, Ana L.F. Porto
- PE069 **Biosurfactants: Microbiology and Biotechnology.** Nair A.S. Neta, João A.C. Cunha, Aline S. Teixeira, Lígia R.M. Rodrigues, José A. Teixeira
- PE070 **Isolation of thermophilic strains and investigation of their lipolytic activity.** Francisco J. Deive, Elisabete Carvalho, M[™] Angeles Sanroman, María A. Longo

PE071	Fractionation of fructo-oligosaccharides by gel filtration. C. Nobre, M.J. Santos, A. Dominguez, D. Torres, L. Rodrigues, I. Rocha, J.A. Teixeira, E.C. Ferreira
PE072	Structural and kinetics effects of amidase from <i>Pseudomonas aeruginosa</i> encapsulated in reversed micelles. Ana Frago, Rita Pacheco and Amin Karmali
PE073	Thermosensitive nanogel for controlled pimaricin release. C. Fuciños, I.R. Amado, P. Fajardo, P. Fuciños, N.P. Guerra, J.M. Teijón, I. Katime, M. L. Rúa, L.M. Pastrana
PE074	Identification and evaluation of fungal strains with fucoidan degradation potential. Rosa Maria Rodriguez Jasso, José A. Teixeira, Cristobal Aguilar Gonzalez, Lorenzo Pastrana
PE075	Modeling and experimental evaluation of poly(3-hydroxybutyrate) production in <i>Bacillus megaterium</i>. Débora Jung Luvizetto Faccin, Ivana Martins, Nilo Sérgio Medeiros Cardozo, Rosane Rech, Marco Antônio Záchia Ayub, Tito Lívio Moitinho Alves, Rossano Gambetta, Argimiro Resende Secchi
PE076	Statistical analysis of oxygen effect on the culture of <i>Bacillus thuringiensis</i>. Azam Najafloo, Mohammad H. Sarrafzadeh, Abbas Gerami
PE077	Characterization of phenolic compounds of OMW: toxicity and degradability by yeasts. Cristiana Gonçalves, João P. Ferreira, Marlene Lopes, Soraia Falcão, António M. Peres, Susana M. Cardoso, Isabel Belo
PE078	Two strategies for biodegradation of high concentration phenol: consecutive adaptations vs. adapting to other compounds. Dong Jin Jeon, Kyung Han Kwon, Sang Han Shim, Ki Hak Ahn, Suk Soon Choi, Kang Yeoun Jung and Sung Ho Yeom
PE079	Changes in the wastewater bacterial community of oil refinery during phenol shock loadings. Fernanda R. Pinhati, Eduardo M. Del Aguila, Aline F. Viero, Ana Paula R. Torres, Joab T. Silva, Vânia M. F. Paschoalin

POSTERS SESSION V

"ADVANCING THE CHEMICAL AND BIOLOGICAL ENGINEERING FUNDAMENTALS", "SUSTAINABLE PROCESS-PRODUCT DEVELOPMENT THROUGH GREEN CHEMISTRY" & "EDUCATING CHEMICAL ENGINEERS FOR COMING CHALLENGES"

PA071	Aqueous biphasic systems with ionic liquids. Catarina M. S. S. Neves, Sónia M. P. Ventura, Mara G. Freire, Maria Alice Z. Coelho, Isabel M. Marrucho and João A. P. Coutinho
PA072	Hydrophobic ionic liquids and water mutual solubilities. Catarina M. S. S. Neves, Mara G. Freire, Luis M. N. B. F. Santos, Isabel M. Marrucho, João Oliveira and João A. P. Coutinho
PA073	Carbon dioxide solubilities in [Cnmim][Tf2N] ionic liquids at high-pressure. Pedro J. Carvalho, José J. B. Machado, Jérôme Pauly, Jean-Luc Daridon, Isabel M. Marrucho, João A. P. Coutinho
PA091	Molybdenum 3-allyldicarbonyl complexes as a new class of precursors for highly reactive epoxidation catalysts with tert-butyl hydroperoxide. Patrícia Neves, João C. Alonsob, Maria João Pires da Silvã, Susana Quintã, Pedro D. Vazc, Carlos M. Silvã, Anabela A. Valentea, Paula Ferreirab, Maria José Calhordac, Vitor Félixa, Michael G. B. Drowd
PA092	Cadmium (II) removal from aqueous solution using microporous titanosilicate ETS-4 and ETS-10. Lidiana Barreira, Elizabeth Camarinha, Patrícia F. Lito, João Rocha, Zhi Lin, Armando C. Duarte, Eduarda Pereira, Carlos M. Silva
PA093	Poly(vinyl alcohol) with sulfonic acid groups as catalyst for the alpha-pinene alkoxylation. José E. Castanheiro, Isabel M. Fonseca, Ana M. Ramos, Joaquim Vital
PA095	Carbon aerogel supported platinum catalysts for selective hydrogenation of cinnamaldehyde. B.F. Machado, S. Morales-Torres, H.T. Gomes, A.F. Pérez-Cadenas, F.J. Maldonado-Hódar, F. Carrasco-Marín, J.L. Figueiredo, J.L. Faria
PA096	Extraction of nickel from spent nickel catalyst with inorganic acid. S. Meysam Hashemnejad, Matin Parvari
PA097	Oxidation of Fe(II) in sulphuric medium. Sílvia M.C. Santos, Ana E. Ferreira, Rita C. Figueiredo, Maria. J.N. Correia, Maria T.A. Reis, Maria R.C. Ismael, Remígio M. Machado, Jorge M.R. Carvalho
PA098	Separation of a nickel/cobalt mixture by using a neutral bifunctional extractant. A. Fortuny, M. T. Coll, A.A. Leopold, A. M. Sastre
PA099	Influence of temperature and composition on density of binary mixtures of alkanolamines. Estrella Álvarez, Diego Gómez-Díaz, José M. Navaza, B. Sanjurjo
PA100	Influence of temperature and internal devices on the drying of fine particles in a conical spouted bed. H. Altzibar, G. Lopez, J. Bilbao, M. Olazar
PA101	Control and minimization of crud in a shallow layer gravity settler. Ribeiro, M. M. M., Marques, M. J. G., Soares, E.V., Guimarães M. M. L.
PA102	Visualization of the concentration boundary layer in a cross-flow rectangular thin channel with a soluble wall by holographic interferometry. Carina Rodrigues, Maria Diná Afonso, Vitor Geraldês

PA104	Removal of 17β-estradiol from water solution. I. Turku, T. Sainio and E. Paatero
PA105	Decolorization of reactive red 180 by laccase: optimization by response surface methodology. Raquel O. Cristóvão, Ana P.M. Tavares, José M. Loureiro, Rui R. Boaventura, Eugénia A. Macedo
PA106	Modeling orange II azo dye degradation by Fenton's reagent. J. Herney Ramirez, Filipa Duarte, Fernando G. Martins, Carlos A. Costa and Luis M. Madeira
PA107	Viscosity of heavy oil and distillation residues with diluents. Andreia Amaro de Lima , Krishnaswamy Rajagopal , Marco Antonio Farah
PA108	Possibility of productivity increase for distillation column. N.A. Vyazmina, D.A. Lipatov
PA109	Solving population balance models in precipitation using orthogonal collocation and stochastic optimization. R. Isopescu, V. Lavric
PA110	Analyzing regimes in chemical reactors with allowing for the multistage kinetics and non-perfection of a system. Brener A.M., Tausarav B.R.
PC001	Environmental performance assessment in process design. Florinda Martins, Carlos Costa
PC002	Environmental performance of the wine industry. opportunities for uptake cleaner production. Rosa A. Rodriguez, Carlos Palacios, Susana Acosta, Stella M. Udaquiola
PC003	Reducing the pollution of leather manufacturing process. Viorica Deselnicu, F. Platon, L. Albu, M. Crudu
PC004	Eco-friendly tanning agents to be used in leather manufacture. Marian Crudu, V. Deselnicu, I. Rosca , D. Sutiman, A. Caillean, M. Ghiga, V. Bocu, N. Boca, D. Capac
PC005	Valorization of tanning waste: production of an organic fertilizer. Tânia M.S. Madeira, Nidia S. Caetano, Leonilde C.P. Morais, António A. Crispim Ribeiro
PC006	Biodiesel production from leather industry wastes. Luís Ramos, Rui Fernandes, António Crispim Ribeiro, Elisa Ramalho, Nidia S. Caetano, Paula Silva
PC007	Influence of feedstocks and operation conditions in biodiesel production. Alexandra Nicolau, Pedro Felizardo, Nuno Canha, José Cardoso Menezes, M. Joana N. Correia
PC008	High free fatty acids oils for biodiesel production. Pedro Felizardo, João Machado, Daniel Vergueiro, M. Joana N. Correia, João Moura Bordado
PC009	Comparison between biodiesel produced from sunflower oil and waste frying oil. Joana M. Dias, Maria C. M. Alvim-Ferraz, and Manuel F. Almeida
PC010	Development of heterogeneous catalysts for transesterification of triglycerides in biodiesel. Jaime F. Puna, João F. Gomes, J.C. Bordado, Maria J. Correia
PC011	Optimization of properties of biodiesel produced from vegetal oil mixtures by response surface methodology. Maria Jorge Pratas, Sílvia C. Monteiro, Armando J.D. Silvestre, Isabel F. Marrucho, João A.P. Coutinho
PC012	Modeling and simulation of process continuous production of biodiesel from soybean oil using immobilized Candida antarctica in fluidized bed bioreactor. G.F. Silva, F.A.S. Mota, J.S. Mendes, L.B.R. Gonçalves, A.L.O. Ferreira
PC013	Kinetic models for the homogeneous alkaline and acid catalysis in biodiesel production. José F.O. Granjo, Nuno M.C. Oliveira
PC014	Selective extraction of organic compounds from transesterification reaction mixtures by using ionic liquids. A.P. de los Ríos, F.J. Hernández-Fernández, F. Tomás-Alonso, D. Gómez, M. Rubio,G. Villora
PC015	Highly selective and efficient transport of transesterification reaction compounds across supported liquid membranes based on tetrafluoroborate ionic liquids. A.P. de los Ríos,F.J. Hernández-Fernández, M. Rubio, O. Ibarra, F. Tomás-Alonso, D. Gómez, G. Villora
PC016	Assessment of several commercial lipases for the catalysis of transesterification reactions. María Barreiro, M ^a Angeles Sanroman, María A. Longo
PC017	Online monitoring of the transesterification reaction. Marcelle Fernanda Carulo, Marina Ayala Carulo, Lilian Calefo Roder, Flávio Vasconcelos da Silva e Ana Maria Frattini Fileti
PC018	Exploitation of agroindustrial biomass by fractionation of its components. Characterization of hemicelluloses, cellulose and other fractionation products. F. López, Juan C. García, A. Pérez, G. Garrote
PC019	Influence of different chemical treatments in lipase immobilization in a lignocellulosic support. Ana I. S. Brígida, Luciana R. B. Gonçalves, Maria Alice Z. Coelho
PC020	Information CALS-model of the innovation technology of biologically active additives of a new generation. Arkadiy M. Bessarabov, Alexey A. Alyakin, Alexey L. Kochetigov
PC021	Hexane extraction process using ionic liquids as solvents. Ana B. Pereiro, Ana Rodríguez

- PC022 **Designing highly stable supported ionic liquid membranes by the adequate selection of the ionic liquid composition and surrounding phase nature.** F.J. Hernández-Fernández, A.P. de los Ríos, F. Tomás-Alonso, J.M. Palacios, D. Gómez, G. Villora
- PC023 **Improving the selectivity in the simultaneous separation of organic compounds through supported liquid membranes by the use of water-miscible ionic liquid.**
F.J. Hernández-Fernández, A.P. de los Ríos, F. Tomás-Alonso, O. Ibarra, D. Gómez, M. Rubio, G. Villora
- PC024 **Improving the stability of supported ionic liquid membranes by chemical immobilization of the ionic liquid.**
A.P. de los Ríos, F.J. Hernández-Fernández, F. Tomás-Alonso, J.M. Palacios, D. Gómez, G. Villora
- PC025 **Stability of hydrolase enzymes in ionic liquids.**
F.J. Hernández-Fernández, A.P. de los Ríos, F. Tomás-Alonso, D. Gómez, M. Rubio, G. Villora
- PC026 **Fructooligosaccharides production using immobilized cells of *Aspergillus japonicus*.**
Solange I. Mussatto, Giuliano Dragone, José A. Teixeira
- PC028 **Development of a biosensor based on ion-selective electrode for urea in milk by using immobilized amidase from *Pseudomonas aeruginosa*.** Ana Rita Barbosa and Amin Karmali
- PC029 **Characterization of the fungi tissue of *Agaricus bisporus* for its future use as a component of a biosensor for phenolic compounds determination.** Livia Maria da Costa Silva, Andréa Medeiros Salgado, Maria Alice Zarur Coelho
- PC030 **Automated nanosensor for monitoring aromatic compounds in industrial environments.**
Lurdes I.B. Silva, Teresa A.P. Rocha-Santos, A.C. Duarte
- PC031 **Influence of the concentration of locust bean gum on the gelling ability of whey peptic hydrolysates.**
Cristina Rocha, Loïc Hilliou, José A. Teixeira, Maria Pilar Gonçalves
- PC032 **Enzymatic agent from red king crab hepatopancreas and its applications.** V. A. Mukhin, V. Yu. Novikov, K. S. Rysakova
- PC033 **Induction of lignolytic and hydrolytic enzymes production in *Pycnoporus sanguineus* by industrial wastewater.**
Kátya R. Freitas; Sabrina M. V. Pacheco; Ayres F. Morgado, Selene M.A. Guelli, U. Souza; Antonio Augusto Ulson de Souza
- PC034 **Alkaline hydrolysis of chitin and chitosan.** V. Yu. Novikov, I. N. Konovalova
- PC035 **Adsorption isotherms of galactomannan films.**
Soares, C.E.A., Rúa, M.L., Perez Guerra, N., Azevedo Moreira, R., Pastrana Castro, L.M.
- PC037 **Application of surfactants to membrane separation processes.** J. Gryzelda Poźniak, Ryszard Poźniak, Kazimiera A. Wilk
- PC038 **Comparison of the antimicrobial efficacy of commercial surfactants with the respective pure components.**
Idalina Machado, Carla Ramos, Manuel Simões, Maria João Vieira, Maria Olívia Pereira
- PC039 **Functionalized nano-microstructures to combat biofilms.**
Ferreira C., Pereira M. C., Bastos M.M.S.M., Nunes O.C., Coelho M. and Melo L. F.
- PC040 **Synthesis and characterization of organic phase gold nanoparticles obtained through chloraurate ions reduction with sodium citrate.** Antoneta Filcenca- Olteanu, Rozalia Radulescu, Eugenia Panturu
- PC041 **Flexible silica based xerogels and aerogels for spatial applications.**
Luísa Durães, Sofia Nogueira, Ana Santos, Jessica Hernandez, António Portugal
- PC042 **Effect of operating conditions on the extraction of β -glucans from barley.** O. Benito, S. Lucas, E. Alonso
- PC044 **Alternative route to poly(lactic acid) synthesis.** Dina A. S. Marques, Cristina M. S. G. Baptista, M. H. Gil
- PC045 **Biodegradability of mixed plastics containing PVAL/Gellan and PVAL/Xanthan in soil environment.**
Martina Kopicilova, Jaromir Hoffmann, Miroslava Tomalova, Pavol Alexy, Marketa Julinova and Anna Nahalkova
- PC046 **Development of semi-transparent wood polymer composites.** Paulo A. N. Dias, Marco S. Reis, Maria H. Gil, José C. Alves
- PC047 **Solubility of acetamide and acrylamide in supercritical carbon dioxide.**
José P. Coelho, Karolina Bernotaityte, Marisa S. Miraldes, Andreia F. Mendonça and Roumiana P. Stateva
- PC048 **Solubility of some sulphates in supercritical water.** Jesusa Rincón, Isaac Asencio, Rafael Camarillo and Alicia Martín
- PC049 **Generation of pharmaceutical cocrystals using supercritical fluid technology.**
Luis Padrela, Miguel Rodrigues, Sitaram Velaga, Henrique A. Matos, Edmundo G. Azevedo
- PC050 **CO₂ capture with CaO / MCM-41 materials.**
Josefa Fernández, Fernando González, Carmen Pesquera, Carmen Blanco and M^a Josefina Renedo
- PF002 **A software tool for design of evaporator systems.** Fernando G. Martins, M.I.M.S. Cruz, Domingos Barbosa
- PF004 **Process synthesis for hydrogen production from glucose: bioreactor design and scale-up and downstream process.**
Alice M. de Lima, Adilson J. de Assis
- PF005 **Teaching and learning strategies to improve the development of student skills in Chemical Engineering degree.**
S. Lucas, M.T. García-Cubero, A. Cartón, S. Bolado, P.A. García-Encina, G. González-Benito, M-A.

POSTERS SESSION VI "SUSTAINABLE PROCESS-PRODUCT DEVELOPMENT THROUGH GREEN CHEMISTRY"

- PC051 **Enhancing CO₂ selectivity in activated carbons for H₂ production applications.**
Filipe V.S. Lopes, Ana M. Ribeiro, Carlos A. Grande, José M. Loureiro, Alirio E. Rodrigues
- PC052 **Preparation of mesoporous carbons using a porous clay heterostructured as template.**
Clara Santos, Angela Martins, Ruben Elvas Leitão, João Pires, Cristina Freire, Ana Paula Carvalho
- PC053 **Influence of the preparation methodologies in the performance of Pd-Cu/AC and Pt-Cu/AC catalysts for nitrate reduction with hydrogen.** Olívia Salomé G. P. Soares, José J. M. Órfão, Manuel F. R. Pereira
- PC054 **Modification of zeolite porosity by alkaline treatments.** Viviana Paixão, Ana Paula Carvalho, Angela Martins
- PC055 **Application of stochastic methods for modeling of the large reaction network of oligomerization.**
Javad R. Shahrrouzi, Denis Guillaume, Pierre Rouchon, Patrick Da Costa
- PC056 **The kinetics of ampicillin release from hydroxyapatite porous for bones regeneration.**
Sílvia V. Albuquerque, Carolyn G. Oliveira, Giovanilton F. Silva, Andrea L.O. Ferreira, Ricardo E.F.Q. Nogueira
- PC057 **Solvent effect on the antioxidant activity of extracts of *Myrtus communis***
L. leaves. Idalino Manuel Costa Faisca, M. Gabriela Bernardo-Gil, José Abecassis Empis, M. João Cebola, Paula Gomes Pereira
- PC059 **Selection of a suitable adsorbent for decoloring sugar solutions from beet industry with ion exchange resins.**
Mónica Coca, M. Teresa García, Sílvia Mato, Gerardo González
- PC060 **Assessment of the efficiency of N,N'-ethylenedi-L-cysteine as a potential green chelator agent.**
M. Teresa Barros, Mónica S. Santos, João Martins, Helena M.V.M. Soares
- PC062 **Delignification kinetics of kraft pulps by laccase-violuric acid system.** Sílvia Guilherme, João A. Queiroz, Rogério M.S. Simões
- PC063 **Kinetics of Kraft pulp brightening with hydrogen peroxide in a final ECF stage.**
Pedro E.G. Loureiro, Dmitry V. Evtuguin, M. Graça V.S. Carvalho
- PC064 **A case study of an absorption process for flue gas treatment.**
Isabel M.B. Pereira, M. Teresa Sena Esteves, Vitorino M. Beleza, Fernando Martins
- PC065 **Influence of nitrogen oxides on ozone concentrations at urban and remote areas.**
Sofia I.V. Sousa, Maria C. Pereira, Fernando G. Martins, Maria C.M. Alvim-Ferraz
- PC066 **Influence of tobacco smoke on carcinogenic content of indoor particulate matter.**
Klara Slezakova, Maria C. Pereira, Maria C. Alvim-Ferraz
- PC067 **Study of NO oxidation before absorption in bubble and packed columns.**
Pedro Costa, Bruno Fonseca, Isabel M. B. Pereira, M. Teresa Sena Esteves
- PC068 **Mechanized separation of plastics from municipal solid waste: evaluation of the separation efficiency by selective dissolution and infrared spectroscopy.** Liliana R. Santos, M. Conceição Paiva, Ana V. Machado, M. Teresa Carvalho
- PC069 **PAHs soil decontamination by an innovative combined method: desorption and electrochemical treatment.**
M^a Teresa Alcántara, Marta Pazos, Maria A. Longo, M^a Angeles Sanromán
- PC070 **Photo-degradation studies of polypropylene geotextiles.**
José Ricardo Carneiro, Inês Maria Valente, Paulo Joaquim Almeida, Maria de Lurdes Lopes
- PC071 **Biosorption kinetic of Orange II dye with non living leaves of *Posidonia oceanica*.**
J.F. Ortuño, V. Meseguer, N. Murcia, M.I. Aguilar, M. Lloréns, J. Sáez, A.B. Pérez-Marín
- PC072 **Continuous biosorption of methylene blue in packed bed of *Posidonia oceanica* leaves.**
V. Meseguer, J.F. Ortuño, S. Calvo, M.I. Aguilar, M. Lloréns, J. Sáez, A.B. Pérez-Marín
- PC073 **Using a flocculent brewer's yeast strain of *Saccharomyces cerevisiae* in the removal of heavy metals.**
Manuela D. Machado, Helena M.V.M. Soares and Eduardo V. Soares,
- PC074 **Optimization of chromium adsorption upon chitosan by surface response analysis.**
Andelib Aydin, Nuran Deveci Aksoy, Bayram Andak
- PC075 **Influence of different cations of N3 dyes on their photovoltaic performance and stability.**
Luisa Andrade, Shaik M. Zakeeruddin, Mohammed K. Nazeeruddin, Michael Graetzel, Helena Aguilar Ribeiro, Adélio Mendes
- PC076 **Membrane charge effects on the recovery of Fe-EDTA species in aqueous solution by nanofiltration.**
Xavier Bernat, Frank Stüber, Agustí Fortuny, Christophe Bengoa, Azael Fabregat, Josep Font
- PC077 **Sorption Isotherms of organic-inorganic hybrids.** Vânia Dias, Dmitry Evtuguin, Inês Portugal
- PC080 **An innovative biological system to treat wastewater: A year of operation of the first wastewater treatment plant in real scale.** A.B. Pérez Marín, M. Lloréns, J. Sáez, J.F. Ortuño, V.F. Meseguer, M.I. Aguilar
- PC081 **Denitrification in an anoxic rotating biological contactor under two carbon/nitrogen ratios.**
Susana Cortez, Pilar Teixeira, Rosário Oliveira, Manuel Mota

PC083	Three-phase fluidized bed bioreactor for wastewater treatment – Parameters effect. Fedailaine Maamar, Boumehdi Toumi Leila, and Allia Khedidja
PC084	Impact of Operational Parameters in Activated Sludge System treating Persistent Industrial Wastewater. Adriana V. Ribeiro, Magali C. Cammarota, Maria Alice Z. Coelho
PC085	Influence of the reactor contents recirculation on methane production - anaerobic digestion of fruits, vegetables and grass waste feedstocks. M. T. Santos, L. M. Amaral, J. V. Prata
PC087	Comparison of different control cascade strategies for anaerobic digesters using ADM1. Carlos Garcia, Francisco Molina, Eugenio Carrasco, Enrique Roca, Juan M. Lema
PC088	Treatment of waters contaminated with diesel fuel by electrocoagulation Adžamić Tamara, Jukić Ante, Sertić-Bionda Katica, Vedranka Bobić
PC089	Application of coagulation systems coupled with adsorption on powdered activated carbon to textile wastewater treatment. Franciele R. Furlan, Laís G. M. da Silva, Antônio A. Ulson de Souza, Ayres F. Morgado, Selene M. A. Guelli Ulson de Souza
PC090	Treatment of wastewater polluted with urea by counter-current thermal hydrolysis in an industrial urea plant. M. M. Barmaki, M. R. Rahimpour, A. Jahanmiri
PC091	Tertiary treatment of slaughterhouse wastewater using ferric coagulation followed by UV or UV/H2O2 processes. D.B. Luiz, H.J. José, R.F.P.M. Moreira
PC092	Membrane bioreactor and advanced oxidation processes applied to wastewater containing non-steroidal anti-inflammatory drugs (NSAIDs). José L. Tambosi, Rênnio F. Sena, Wilhelm Gebhardt, Regina F.P.M. Moreira, Humberto J. José and Horst Fr. Schröder
PC093	Phosphorus and nitrogen removal using a hybrid UCT process. Saldarriaga, Julio and Garrido, Juan
PC094	Basic dyestuffs removal from textile wastewaters using almond hulls: Equilibrium and kinetic studies. M. L., Ávila, C. F. Farinha, S. A. Figueiredo
PC095	Integration of emergent processes for the treatment of wastewater from nitrocellulose industry: treatment with <i>Aspergillus</i> 2BNL1 fungus and TIO2/UV. Marcio B. Rodrigues; João V.B. Souza; Érica S. Silva; Flávio T. Silva; Teresa C.B. Paiva
PC096	Olive mill effluents treatment by physical-chemical integrated processes. Rui C. Martins, Nádia Costa, Cátia M. Augusto, Margarida J. Quina, Licínio M. Gando-Ferreira and Rosa M. Quinta-Ferreira
PC097	Removal of formaldehyde by oxidation from phenolic resin plant effluents. Shiva Agarwal, Ana E. Ferreira, Licínio M. Ferreira, M. Teresa A. Reis, Remígio M. Machado, Jorge M. R. Carvalho
PC098	Removal of linoleic acid from ethanolic solutions with ion exchange resins. Ana C. Morelli, Erika C. Cren, Antonio J. Meirelles
PC099	Breakthrough curves for oleic acid adsorption in ion exchange resin. Natália P. Macedo, Erika C. Cren, Antonio J. Meirelles
PC100	Chromium removal by constructed wetlands: evaluating the effects of chromium rich industrial effluents. Dina M.R. Mateus, Ângela Leonardo, Filipe Pequeno, Henrique J.O. Pinho
PC101	Recovery of heavy metals by hybrid membrane processes. Gryzelda Poźniak, Ryszard Poźniak, Kazimiera A. Wilk
PC102	Removal of dyes from the textile industry by adsorption in fixed bed columns - A sustainable process. Andressa R. Vasques, Letícia Weissenberg, Selene M. Guelli U. de Souza, José A. B. Valle, Antônio A. Ulson de Souza
PC103	Activated carbon from coconut shells as catalyst in the CWAO of phenol in a trickle bed reactor. Maretva Baricot, Geoffrey Fowler, Agustí Fortuny, Frank Stüber, Christophe Bengoa, Azael Fabregat and José Font
PC104	Use of chemical modification to determine the binding of Cd(II), Zn(II) and Cr(III) ions by orange waste. A.B. Pérez Marín, J.F. Ortuño, M.I. Aguilar, V.F. Meseguer, J. Sáez, M. Lloréns
PC105	Comparative mercury removal by ETS-4 and activated carbon from low contaminated solutions. Cláudia B. Lopes, Marta Otero, Zhi Lin, Carlos M. Silva, João Rocha, Eduarda Pereira Armando C. Duarte
PC106	Selection of indigenous acidophilic bacteria for the bioleaching of two SOMINCOR concentrates. Susana M. Paixão, Maria C. Sâãgua, Lina Baeta-Hall, Carlos Nogueira, Paula Sá-Pereira, José C. Duarte, Ana M. Anselmo
PC107	Kinetic constants of phenolic compounds oxidation by Fenton's reagent. Marco S. Lucas, Joaquín R. Domínguez, José A. Peres
PC108	Study of the behaviour of the azeotropic mixture ethanol + water + 1-butyl-3-methylimidazolium methylsulfate. Begoña González, Noelia Calvar, Elena Gómez and Angeles Domínguez