

ESBES 7

7th European Symposium on Biochemical Engineering Science



DEHEMA e.V.
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Programme

Faro, Portugal
September 7 – 10, 2008



// Welcome Address

The 7th European Symposium on Biochemical Engineering Science will take place in the beautiful town of Faro at the Algarve Coastline in Portugal from 7 – 10 September, 2008. The symposium is jointly organised by the IBB-Institute of Biotechnology and Bioengineering, the University of Algarve, and DECHEMA, Frankfurt. It is our great pleasure to invite you to participate in the networking event of the community and discuss about latest results.

The ESBES Symposium Series has developed to the leading platform for the community over the last years which provides the opportunity for biochemical scientists and engineers but also for researchers of adjacent fields to exchange their experiences.

Looking at the conference topics you will see that all areas of the discipline are covered. Workshops on new and promising technologies complete the programme.

We look forward to meeting you in Faro!

Dr. Guilherme Ferreira

Chair of the conference

// Supporting Partners of the Conference

The organisers convey their sincere thanks for financial support to



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and to the cities of Faro and Tavira.

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// Scientific Committee

G.N.M. Ferreira (Chair)	University of Algarve, Faro/P
K. Bayer	University of Natural Resources and Applied Life Sciences, Vienna/A
M. Berovič	University of Ljubljana/SLO
J. Büchs	RWTH Aachen/D
J.M.S. Cabral	Instituto Superior Técnico, Lisbon/P
M. Cánovas	University of Murcia/E
P. Glavic	University of Maribor/SLO
K. Graumann	Sandoz GmbH, Kundl/A
S. Hober	Royal Institute of Technology, Stockholm/S
A. Jungbauer	University of Natural Resources and Applied Life Sciences, Vienna/A
G. Lidén	Lund University/S
A. Lübbert	University of Halle-Wittenberg/D
C.-F. Mandenius	University of Linköping/S
W. Meier	DECHEMA e.V., Frankfurt am Main/D
B. Nidetzky	Technical University of Graz/A
S. Novak	University of Zagreb/HR
I. Plazl	University of Ljubljana/SLO
A. Podgornik	BIA Separations d.o.o., Ljubljana/SLO
M. Polakovič	Slovak University of Technology, Bratislava/SK
C. Posten	University of Karlsruhe (TH)/D
A. Schmid	Technical University of Dortmund/D
T. Schulz	Boehringer Ingelheim Pharma GmbH & Co. KG, Biberach/D
A. Staby	Novo Nordisk A/S, Gentofte/DK
W. Steiner	Technical University of Graz/A
O.R.T. Thomas	University of Birmingham/UK
J.M. Woodley	Technical University of Denmark, Lyngby/DK

// Local Organising Committee

G.N.M. Ferreira (Chair)	University of Algarve, Faro/P
J.M.S. Cabral	Instituto Superior Técnico, Lisbon/P
R. Aires-Barros	Instituto Superior Técnico, Lisbon/P
L. Pedro	University of Algarve, Faro/P
S.S. Soares	University of Algarve, Faro/P
L. Rosa	University of Algarve, Faro/P
L.A. Lopes	University of Algarve, Faro/P

// Plenary Lectures

Sunday, September 7, 2008	18:30 – 19:30
The potential and the challenges in applying thermodynamics to whole-cell biochemical engineering	
U. von Stockar, EPFL/CH	
Monday, September 8, 2008	9:00 – 9:45
The sugar industry: the cradle of biochemical engineering	
J. Villadsen, Technical University of Denmark, Lyngby/DK	
Monday, September 8, 2008	14:00 – 14:45
High-throughput molecular bioprocessing: a new addition to biochemical engineering science	
J.S. Dordick, Rensselaer Polytechnic Institute, Troy, NY/USA	
Monday, September 8, 2008	16:55 – 17:40
A perspective of the development of the field metabolic engineering from the early days of J. Bailey until today	
V. Hatzimanikatis, EPFL/CH	
Tuesday, September 9, 2008	9:00 – 9:45
Biopharmaceutical process development – a regulatory perspective on the future	
I. Møllerup, Novo Nordisk A/S, Bagsværd/DK	
Wednesday, September 10, 2008	9:00 – 9:45
Sustainable production of bio fuels and bio commodity products – chances and challenges	
M. Narodoslawsky, Technical University of Graz/A	

// Malcolm Lilly Award

In commemoration of Professor Malcolm Lilly, one of the pioneers of biochemical engineering, the ESBES Board in 2000 decided to introduce an award to be presented to a promising young scientist or engineer working in the field of biochemical engineering during the ESBES Symposium: the Malcolm Lilly Award. This is the 5th symposium at which the award will be made and on this occasion PhD students and postdocs are invited to submit a one-page abstract for consideration to martz@dechema.de by **July 31, 2008** at the latest. The abstracts will be reviewed by a jury and shortlisted candidates (up to 5) will be selected to present an oral lecture at ESBES-7.

This prestigious award comes with a 2,000 US Dollar prize. The organisers thank Merck & Co. Inc., Westpoint, PA/USA for their generous sponsorship. The award ceremony will take place at the closing session of the conference.

// Workshops

On **Sunday, September 7, 2008** the following three workshops will be held at the University of Algarve.

Cost per person: 50 EUR per workshop including coffee/tea and soft drinks during the coffee break.

Registration is necessary, please fill in the registration form.

Location:

Faculdade de Engenharia de Recursos Naturais
Campus de Gambelas
Portaria Nascente
8000-117 Faro/P



Sunday, September 7, 2008

Room: Auditorium (anfiteatro) 1.8.1, building 8/9

14:00 – 17:00 **Workshop 1: Analysis of Genomic Data with R and Bioconductor**

Careful statistical design and analysis are essential to improve the efficiency and reliability of genomic data, from the early design and pre-processing stages to higher-level analysis. Powerful statistical and graphical methods are essential for the analysis of gene expression data. This tutorial will give an introduction to the capabilities provided by the open source statistical computing environment R (www.r-project.org) and Bioconductor (www.bioconductor.org), the open source software project for the analysis and comprehension of genomic data. The tutorial will include design issues, quality control and pre-processing of microarray data as well as identification of differentially expressed genes, gene set enrichment analysis and cluster analysis.

Th. Scharl, University of Natural Resources and Applied Life Sciences, Vienna/A

Room: to be announced

14:00 – 17:00 **Workshop 2: Molecular Dynamics Simulations of Proteins**

The attendees will learn how to set up, run and analyse molecular dynamics simulations of biomolecular systems. The PyMOL software will be used for molecular visualisation, and the GROMACS package for MD simulation and analysis. Topics will include topology building, cleaning of structures for simulation, setup of the simulation box, choice of parameters, system equilibration and analysis of the simulated data, both visually and numerically. All model systems used in the workshop will be biological relevant.

P. Martel, University of Algarve, Faro/P

Room: Auditorium (anfiteatro) 1.22, building 8/9

14:00 – 17:00 **Workshop 3: Quality by Design**

The concept of Quality by Design refers to features and decisions that deliver a high degree of confidence that manufactured product lots will have the intended quality and performance. This includes, for example, design to specification goals and ability to describe and justify why proposed design features deliver the intended quality. The workshop will focus on biotechnology-related drug products and their particular characteristics.

C.-F. Mandenius, University of Linköping/S

(Programme subject to change)

Sunday, September 7	
13:00	Registration for workshop participants
14:00 - 17:00	WORKSHOP 1: Analysis of Genomic Data with R and Bioconductor (Th. Scharl) Room: Auditorium (anfiteatro) 1.8.1, building 8/9 (detailed description on page 7)
	WORKSHOP 2: Molecular Dynamics Simulations of Proteins (P. Martel) Room: to be announced (detailed description on page 7)
	WORKSHOP 3: Quality by Design (C.-F. Mandenius) Room: Auditorium (anfiteatro) 1.22, building 8/9 (detailed description on page 7)
15:00	Registration for conference participants
Room:	University Auditorium, building 4
18:00	OPENING
18:30	Chair: A. Jungbauer EVENING LECTURE: U. von Stockar
19:30	Welcome Reception (19:30 – 21:00)

Monday, September 8	
Room:	University Auditorium, building 4
9:00	Chair: M. Berovič PLENARY: J. Villadsen
9:45	Coffee Break
Room:	Auditorium 1.16, building 8/9 Auditorium (anfiteatro) 1.8.1, building 8/9 Auditorium 1.2, building 8/9
	Bioreaction Engineering Biocatalysis and Biotransformation Bioseparation
Chair:	J. Villadsen J. Woodley O.R.T. Thomas
10:05	V. Bernal R. Kratzer K. Bauer
10:30	J. Schrader W. Van Hecke M. Ottens
10:55	M.G.E. Albuquerque S.M.S.A. Bernardino M. Polakovic
11:20	G. Medaglia D.P.C. de Barros B. Hickstein
11:45	General Assembly of the EFB Section on Biochemical Engineering Science (Room: Auditorium 1.2, building 8/9 – 11:45–13:00)
11:45	Lunch
Room:	University Auditorium, building 4
14:00	Chair: J. Cabral PLENARY: J. Dordick
14:45	Time for room change
Room:	Auditorium 1.16, building 8/9 Auditorium (anfiteatro) 1.8.1, building 8/9 Auditorium 1.2, building 8/9
	Bioreaction Engineering Biocatalysis and Biotransformation Bioseparation
Chair:	A. Lübbert J. Woodley M. Ottens
14:50	M. Bizukojc A. Schmid O.R.T. Thomas
15:15	C.A. Roa Engel K. Dimoula P. Francis
15:40	Coffee Break
Chair:	A. Lübbert A. Schmid M. Ottens
16:00	A.J. Want A.L.O. Ferreira A.M. Azevedo
16:25	N.H. Hancocks C.C.C.R. de Carvalho A.G. Gomes
16:50	Time for room change
Room:	University Auditorium, building 4
16:55	Chair: M. Canovas PLENARY: V. Hatzimanikatis
17:40	Poster Party (17:40–20:00)

Tuesday, September 9	
Room:	University Auditorium, building 4
9:00	Chair: A. Jungbauer PLENARY: I. Mollerup
9:45	Time for room change
Room:	Auditorium (anfiteatro) 1.22, building 8/9 Auditorium 1.16, building 8/9 Auditorium 1.2, building 8/9
	M3C Engineering Challenges for Biotechnology Industry Bioseparation
Chair:	C. Posten A. Staby S. Hober
9:50	R. Luttmann J. Morris T. Tarmann
10:15	K.V. Gernaey A.A. Öncül M.W. Wolff
10:40	Coffee Break
11:00	T. Scharl M. Funke R. Hahn
11:25	O. Preisner C. Sieblist S. Yamamoto
11:50	A. Eliasson Lantz P.A.J. Rosa K.O. Strætkvern
12:15	Lunch
Room:	University Auditorium, building 4
14:00	Poster Award Presentations of Nominated Posters (6 à 5-7 min.)
15:00	Time for room change
Room:	Auditorium (anfiteatro) 1.22, building 8/9 Auditorium 1.16, building 8/9 Auditorium 1.2, building 8/9
	Bioreaction Engineering Engineering Challenges for Biotechnology Industry Biomedical and Tissue Engineering
Chair:	B. Nidetzky K. Graumann J. Cabral
15:05	L.F.M. Rosa K. Sautter N. Hunt
15:30	B. Krampe J. Schaub S.S. Soares
15:55	Coffee Break
Chair:	C.-F. Mandenius T. Schulz J. Cabral
16:10	M. Maurer A. Lübbert T.G. Fernandes
16:35	S.M. Stocks M.K. Eiberle G.T. John
17:00	End of lectures
18:30	Bus departure from Faro hotels
19:00	Dinner and Poster Award (19:00–24:00)

(Programme subject to change)

TOPICS:

Bioreaction Engineering
Biocatalysis and Biotransformation
Bioseparation
M3C – Modelling, Monitoring, Measurement & Control
Engineering Challenges for Biotechnology Industry
Biomedical and Tissue Engineering
Solid State Bioprocessing
Biofuel Engineering and Sustainability
Miniaturisation in Bioengineering and Nanobiotechnology
Biothermodynamics

Wednesday, September 10	
Room:	University Auditorium, building 4
9:00	Chair: K. Bayer PLENARY: M. Narodoslawsky
9:45	Time for room change
Room:	Auditorium (anfiteatro) 1.8.1, building 8/9 Room: Auditorium 1.16, building 8/9 Auditorium 1.2, building 8/9
	Solid State Bioprocessing Biofuel Engineering and Sustainability Miniaturisation in Bioengineering and Nanobiotechnology
Chair:	D.A. Mitchell, M. Berovič M. Narodoslawsky G.N.M. Ferreira
9:50	D.A. Mitchell C. Knocke D. Schäpper
10:15	M. Berovič S. Krahulec A. Pohar
10:40	Coffee Break
Chair:	M. Berovič M. Narodoslawsky J. Büchs
11:00	N. Krieger M. Pedersen M.T. Neves-Petersen
11:25	M.L.E. Gutarra J. Cavalheiro D.M.F. Prazeres
11:50	M.-A. Mirata M. Sulu R. Baltazar
12:15	Lunch
Room:	University Auditorium, building 4
13:15	Chair: M. Berovič Malcolm Lilly Award Presentations
14:30	Coffee Break
Room:	Auditorium (anfiteatro) 1.8.1, building 8/9 Auditorium 1.16, building 8/9 Auditorium 1.2, building 8/9
	Bioreaction Engineering Biocatalysis and Biotransformation Biothermodynamics
Chair:	K. Bayer A. Schmid A. Jungbauer
15:00	H. Dörnenburg D. Weuster-Botz F. Tumakaka
15:25	N. Carinhas H. Schewe A. Dürauer
15:50	L. Pedro D. Holtmann B.K. Nfor
16:15	V. Walter S. de Wildeman F. Sousa
16:40	Time for room change
Room:	University Auditorium, building 4
16:45	Malcolm Lilly Award / Closing

Room:	University Auditorium, building 4		
09:00	<p style="text-align: center;"><i>Chair: M. Berovič, University of Ljubljana/SLO</i></p> <p style="text-align: center;">PLENARY LECTURE: The sugar industry: the cradle of biochemical engineering – J. Villadsen, Technical University of Denmark, Lyngby/DK</p>		
09:45	Coffee Break		
Room:	Auditorium 1.16, building 8/9	Auditorium (anfiteatro) 1.8.1, building 8/9	Auditorium 1.2, building 8/9
	Bioreaction Engineering	Biocatalysis and Biotransformation	Bioseparation
	<i>Chair: J. Villadsen, Technical University of Denmark, Lyngby/DK</i>	<i>Chair: J. Woodley, Technical University of Denmark, Lyngby/DK</i>	<i>Chair: O.R.T. Thomas, University of Birmingham/UK</i>
10:05	<p>Engineering challenges in the production of baculovirus vectors for gene therapy V. Bernal, N. Carinhas, A.Y. Yokomizo, T. Vicente, Universidade Nova de Lisboa, Oeiras/P; R. Oliveira, M.J.T. Carrondo, Universidade Nova de Lisboa, Oeiras and Universidade Nova de Lisboa, Caparica/P; P.M. Alves, Universidade Nova de Lisboa, Oeiras/P</p>	<p>Multi-level engineering approach to improve ketone reduction by baker's yeast R. Kratzer, S. Egger, B. Nidetzky, Graz University of Technology/A</p>	<p>Systematic design of downstream processes – generation of process alternatives K. Bauer, G. Schembecker, Technical University of Dortmund/D</p>
10:30	<p>MPEC – microparticle-enhanced cultivation: a novel method for submerged cultivation of filamentous microorganisms M. Pescheck, K. Ehrich, B. Kaup, J. Schrader, DECHEMA e.V., Frankfurt am Main/D</p>	<p>Bubble-free oxygenation for enzymatic oxidation of lactose to lactobionic acid W. Van Hecke, Universiteit Gent/B; R. Ludwig, University of Natural Resources and Applied Life Sciences Vienna/A; J. Dewulf, Universiteit Gent/B; M. Auly, University of Natural Resources and Applied Life Sciences Vienna/A; T. Messiaen, Universiteit Gent/B; D. Haltrich, University of Natural Resources and Applied Life Sciences Vienna/A; H. Van Langenhove, Universiteit Gent/B</p>	<p>Development of chromatography process design database from crude mixture of proteins T. Ahamed, B.K. Nfor, L.A.M. van der Wielen, P.D.E.M. Verhaert, G.W.K. van Dedem, M. Ottens, Delft University of Technology/NL; M.H.M. Eppink, N.V. Organon, Oss/NL; E.J.A.X. van de Sandt, DSM Anti-Infectives, Delft/NL</p>
10:55	<p>Production of bioplastics (PHA) from sugar cane molasses M.G.E. Albuquerque, C. Torres, Universidade Nova de Lisboa/P; S. Bengtsson, A. Werker, Anoxkalnes AB, Lund/S; M.A.M. Reis, Universidade Nova de Lisboa/P</p>	<p>Cephalixin synthesis by Penicillin G Acylase immobilized in sol-gel S.M.S.A. Bernardino, P. Fernandes, L.P. Fonseca, Instituto Superior Técnico, Lisboa/P</p>	<p>Characterization of pore structure of Sartobind Q membrane adsorbent in different buffers and salt concentrations I. Tatarova, M. Polakovic, Slovak University of Technology, Bratislava/SK; R. Faber, Sartorius Stedim Biotech, Göttingen/D</p>
11:20	<p>A novel two stage production process for the lantibiotic gallidermin G. Medaglia, G. Valsesia, S. Panke, ETH Zürich/CH</p>	<p>Enzymatic synthesis of fatty acid alkyl esters in miniemulsion D.P.C. de Barros, L.P. Fonseca, J.M.S. Cabral, Instituto Superior Técnico, Lisbon/P; C.K. Weiss, K. Landfester, University of Ulm/D</p>	<p>Innovation in bioseparation with magnetic beads B. Hickstein, Clausthal University of Technology/D; T. Käßler, C. Posten, University of Karlsruhe (TH)/D; U.A. Peuker, Clausthal University of Technology/D</p>
11:45–13:00	General Assembly of the EFB Section on Biochemical Engineering Science (Room: Auditorium 1.2, building 8/9)		
11:45	Lunch		
Room:	University Auditorium, building 4		
14:00	<p style="text-align: center;"><i>Chair: J. Cabral, Technical University of Lisbon/P</i></p> <p style="text-align: center;">PLENARY LECTURE: High-throughput molecular bioprocessing: a new addition to biochemical engineering science – J.S. Dordick, Rensselaer Polytechnic Institute, Troy, NY/USA</p>		
14:45	Time for room change		
Room:	Auditorium 1.16, building 8/9	Auditorium (anfiteatro) 1.8.1, building 8/9	Auditorium 1.2, building 8/9
	Bioreaction Engineering	Biocatalysis and Biotransformation	Bioseparation
	<i>Chair: A. Lübbert, University of Halle-Wittenberg/D</i>	<i>Chair: J. Woodley, Technical University of Denmark, Lyngby/DK</i>	<i>Chair: M. Ottens, Delft University of Technology/NL</i>
14:50	<p>Physiological, morphological and kinetic aspects of lovastatin biosynthesis by <i>Aspergillus terreus</i> M. Bizukojc, S. Ledakowicz, Technical University of Lodz/PL</p>	<p>Systems biotechnology for selective whole-cell redox biocatalysis B. Bühler, D. Kuhn, Technical University of Dortmund/D; J.-B. Park, Ewha Womans University, Seoul/ROK; L.M. Blank, A. Schmid, Technical University of Dortmund and ISAS-Institute for Analytical Sciences, Dortmund/D</p>	<p>Smart little adsorbents! O.R.T. Thomas, University of Birmingham/UK</p>
15:15	<p>Conceptual process design of integrated fermentation, deacylation and crystallization for production of β-lactam antibiotics C.A. Roa Engel, A.J.J. Straathof, W.M. van Gulik, Technical University of Delft/NL; E.J.A.X. van de Sandt, T. van der Does, DSM Anti-infectives, Delft/NL; L.A.M. van der Wielen, Technical University of Delft/NL</p>	<p>Enzymatic gas/solid reactions: an engineering approach K. Dimoula, J. Büchs, A.C. Spiess, RWTH Aachen University/D</p>	<p>Constant shear affinity filtration: an integrated technology for direct product capture from mammalian cell cultures P. Francis, F. Taghipour, C.A. Haynes, University of British Columbia, Vancouver/CDN</p>
15:40	Coffee Break		
	<i>Chair: A. Lübbert, University of Halle-Wittenberg/D</i>	<i>Chair: A. Schmid, Technical University of Dortmund/D</i>	<i>Chair: M. Ottens, Delft University of Technology/NL</i>
16:00	<p>Flow cytometric analysis of recombinant antibody fragment production in <i>Escherichia coli</i> under batch and fed-batch cultures A.J. Want, University of Birmingham/UK; J. Liddell, B. Kara, Avecia Biologics Ltd., Billingham/UK; O.R.T. Thomas, University of Birmingham/UK; C.J. Hewitt, Loughborough University/UK</p>	<p>Penicillin acylase-catalyzed ampicillin synthesis: effect of pH and type of carriers on selectivity and yields G.F. Silva, Tecnologias Bioenergéticas, Fortaleza/BR; A.K.P.B. Siqueira, A.L.O. Ferreira, Universidade Federal do Ceará, Fortaleza/BR</p>	<p>Affinity-enhanced partitioning of human antibodies in aqueous two-phase systems A.M. Azevedo, P.A.J. Rosa, I.F. Ferreira, Instituto Superior Técnico, Lisboa/P; J. de Vries, R. Korporaal, H.J. Verhoef, T.J. Tisser, Syncrom BV, Groningen/NL; M.R. Aires-Barros, Instituto Superior Técnico, Lisboa/P</p>
16:25	<p>The effect of cryopreservation on α-amylase production during 5L batch <i>Bacillus licheniformis</i> fermentations N.H. Hancocks, C. Thomas, University of Birmingham/UK; S.M. Stocks, Novozymes Fermentation Pilot Plant, Bagsvaerd/DK; C.J. Hewitt, Loughborough University, Leicestershire/UK</p>	<p>Membrane and surface properties of <i>Rhodococcus erythropolis</i> cells in two-phase systems C.C.C.R. de Carvalho, Instituto Superior Técnico, Lisboa/P</p>	<p>Plasmid DNA purification by phenyl boronate affinity chromatography A.G. Gomes, A.M. Azevedo, M.R. Aires-Barros, D.M.F. Prazeres, Instituto Superior Técnico, Lisboa/P</p>
16:50	Time for room change		
Room:	University Auditorium, building 4		
16:55	<p style="text-align: center;"><i>Chair: M. Canovas, University of Murcia/E</i></p> <p style="text-align: center;">PLENARY LECTURE: A perspective of the development of the field metabolic engineering from the early days of J. Bailey until today – V. Hatzimanikatis, EPFL/CH</p>		
17:40–20:00	Poster Party		

Room:	University Auditorium, building 4		
09:00	Chair: A. Jungbauer, University of Natural Resources and Applied Life Sciences, Vienna/A PLENARY LECTURE: Biopharmaceutical process development – a regulatory perspective on the future – I. Møllerup, Novo Nordisk A/S, Bagsværd/DK		
09:45	Time for room change		
Room:	Auditorium (anfiteatro) 1.22, building 8/9	Auditorium 1.16, building 8/9	Auditorium 1.2, building 8/9
	M3C – Modelling, Monitoring, Measurement & Control	Engineering Challenges for Biotechnology Industry	Bioseparation
	Chair: C. Posten, University of Karlsruhe/D	Chair: A. Staby, Novo Nordisk A/S, Gentofte/DK	Chair: S. Hober, Royal Institute of Technology, Stockholm/S
09:50	On-line analysis, modeling and simulation of recombinant protein expression processes with <i>Pichia pastoris</i> R. Luttmann, A. Kazemi, S. Treder, E. Werner, M. Eicke, B. Hahn, G. Cornelissen, Hamburg University of Applied Sciences/D	Process Analytical Technologies (PAT) and process systems engineering J. Morris, Newcastle University/UK; Z.-P. Chen, Strathclyde University, Glasgow/UK; D. Lovett, Perceptive Engineering, Daresbury/UK	Plasmid DNA recovery by adsorption on nonporous beads T. Tarmann, D. Horner, University of Natural Resources and Applied Life Sciences, Vienna/A; R. Ganja, Boehringer-Ingelheim Austria GmbH, Vienna/A; A. Jungbauer, University of Natural Resources and Applied Life Sciences, Vienna/A
10:15	Mechanistic models for evaluation of alternative fermentation control strategies within a PAT framework K.V. Gernaey, E. Albo, J. Woodley, G. Sin, Technical University of Denmark, Lyngby/DK	Characterization of flow conditions in wave bioreactors using CFD A.A. Öncül, D. Thévenin, University of Magdeburg/D; Y. Genzel, U. Reichl, MPI for Dynamics of Complex Technical Systems, Magdeburg/D	Capturing of cell culture derived Vaccinia Virus by heparin-affinity chromatography M.W. Wolff, MPI for Dynamics of Complex Technical Systems, Magdeburg/D; C. Venzke, University of Magdeburg/D; S. Lehmann, MPI for Dynamics of Complex Technical Systems, Magdeburg/D; S. Post Hansen, R. Djurup, Bavarian Nordic A/S, Kvistgard/DK; R. Faber, Sartorius AG, Göttingen/D; U. Reichl, MPI for Dynamics of Complex Technical Systems and University of Magdeburg/D
10:40	Coffee Break		
11:00	Interactive visualization of gene clusters to improve the monitoring of <i>E. coli</i> recombinant systems T. Scharl, G. Striedner, F. Pötschacher, K. Bayer, University of Natural Resources and Applied Life Sciences, Vienna/A; F. Leisch, University of Munich/D	Baffled microtiter plates – sufficient oxygen for microorganisms M. Funke, J. Büchs, RWTH Aachen University/D; F. Kency, C. Müller, m2p-labs GmbH, Aachen/D	On-column refolding of proteins using N^{pro} fusion technology R. Hahn, E. Schmöger, B. Kanatschnig, N. Wernig, A. Dürauer, A. Jungbauer, University of Natural Resources and Applied Life Sciences Vienna/A
11:25	Contribution of FT-IR spectroscopy and chemometrics to clinical microbiology – epidemiological typing of <i>Klebsiella pneumoniae</i> O. Preisner, Technical University of Lisbon/P; R. Guiomar, J. Machado, National Health Institute Ricardo Jorge, Lisbon/P; J.A. Lopes, University of Porto/P; J.C. Menezes, Technical University of Lisbon/P	A test facility for sparger of production-scale-bioreactors C. Sieblist, S. Günther, M. Aehle, University Halle-Wittenberg/D; M. Pohlscheidt, M. Jenzsch, Roche Diagnostics GmbH, Penzberg/D; A. Lübbert, University Halle-Wittenberg/D	Effects of mobile phase modulators on retention and separation of proteins in electrostatic interaction chromatography M. Abe, P. Akbarzadehaleh, Y. Sakaguchi, N. Yoshimoto, S. Yamamoto, Yamaguchi University, Ube/J
11:50	Applying spectroscopic methods and chemometrics to get a snap-shot of physiology in fermentation processes A. Eliasson Lantz, P. Odman, N. Petersen, L. Olsson, K.V. Gernaey, Technical University of Denmark, Lyngby/DK	Multi-stage-enhanced recovery of human antibodies by aqueous-two phase extraction P.A.J. Rosa, A.M. Azevedo, I.F. Ferreira, Instituto Superior Técnico, Lisboa/P; S. Sommerfeld, Bayer Technology Services GmbH, Leverkusen/D; M.R. Aires-Barros, Instituto Superior Técnico, Lisboa/P; W. Baecker, Bayer Technology Services GmbH, Leverkusen/D	Potato protein isolation by expanded bed adsorption and ultrafiltration S. Lokra, K.O. Strætkvern, Hedmark University College, Hamar/N
12:15	Lunch		
Room:	University Auditorium, building 4		
14:00	Poster Award Presentations of Nominated Posters (6 à 5-7 min.)		
15:00	Time for room change		
Room:	Auditorium (anfiteatro) 1.22, building 8/9	Auditorium 1.16, building 8/9	Auditorium 1.2, building 8/9
	Bioreaction Engineering	Engineering Challenges for Biotechnology Industry	Biomedical and Tissue Engineering
	Chair: B. Nidetzky, Technical University of Graz/A	Chair: K. Graumann, Sandoz GmbH, Kundl/A	Chair: J. Cabral, Technical University of Lisbon/P
15:05	Batch and fed-batch production of recombinant human cytochrome P450 3A4 L.F.M. Rosa, G.N.M. Ferreira, University of Algarve, Faro/P	Novel approaches in cell line and process development K. Sautter, B. Enenkel, T. Schulz, L. Florin, E. Becker, J. Schaub, C. Clemens, J. Fieder, H. Kaufmann, Boehringer Ingelheim Pharma GmbH & Co. KG, Biberach a.d. Riss/D	Production of a full thickness skin-substitute using an alginate hydrogel scaffold N. Hunt, R. Shelton, D. Hukins, L. Grover, University of Birmingham/UK
15:30	Transcriptome analysis of antibody producing NS0 cells in chemostat and perfusion cultures B. Krampe, M. Al-Rubeai, University College Dublin/IRL	Experimental and computational tools for in-depth profiling of a recombinant high productivity CHO fed batch cell culture process J. Schaub, C. Clemens, W. Rust, M. Lenter, T. Hildebrandt, K. Quast, D. Mennerich, T.W. Schulz, Boehringer Ingelheim Pharma GmbH & Co. KG, Biberach a.d. Riss/D	Vif as target for the control of HIV-1 infection: use of recombinant VLPs for non-viral molecular therapy S.S. Soares, L. Pedro, G.N.M. Ferreira, University of Algarve, Faro/P
15:55	Coffee Break		
	Chair: C.-F. Mandenius, Linköping University/S	Chair: T. Schulz, Boehringer Ingelheim Pharma GmbH & Co. KG, Biberach a.d. Riss/D	Chair: J. Cabral, Technical University of Lisbon/P
16:10	Rational optimisation of <i>Pichia pastoris</i> fed batch cultivation for improved productivity of heterologous proteins M. Maurer, University of Natural Resources and Applied Life Sciences Vienna/A; K. Baumann, Universitat Autònoma de Barcelona/E; M. Kühleitner, University of Natural Resources and Applied Life Sciences Vienna/A; P. Ferrer, Universitat Autònoma de Barcelona/E; D. Mattanovich, University of Natural Resources and Applied Life Sciences Vienna/A	How reproducible can we cultivate microorganisms during recombinant protein production processes S. Gnath, A. Kuprijanov, University of Halle-Wittenberg, Halle/Saale/D; R. Simutis, Kaunas University of Technology/LT; A. Lübbert, University of Halle-Wittenberg, Halle/Saale/D	A high-throughput 3D cell microarray to study stem cell fate T.G. Fernandes, Instituto Superior Técnico, Lisbon/P and Rensselaer Polytechnic Institute, Troy, NY/USA; S.-J. Kwon, Rensselaer Polytechnic Institute, Troy, NY/USA; M.-Y. Lee, Solidus Biosciences, Troy, NY/USA; M.M. Diogo, C. Lobato da Silva, Instituto Superior Técnico, Lisbon/P; D.S. Clark, University of California, Berkeley, CA/USA; J.M.S. Cabral, Instituto Superior Técnico, Lisbon/P; J.S. Dordick, Rensselaer Polytechnic Institute, Troy, NY/USA
16:35-17:00	A comparison of traditional Rushton disc turbines with high solidity ratio, up-pumping, axial hydrofoil impellers in 550 L pilot scale aerobic submerged fermentations S.M. Stocks, Novozymes A/S, Bagsværd/DK; M.O. Albaek, Technical University of Denmark, Lyngby/DK; A.W. Nienow, The University of Birmingham/UK	Optimization of inclusion body-based production of single-chain Fv fragments (scFv) M.K. Eiberle, H. Hohenblum, M. Graf, Boehringer Ingelheim Austria GmbH, Vienna/A; A. Jungbauer, University of Natural Resources and Applied Life Sciences, Vienna/A; M. Berkemeyer, Boehringer Ingelheim Austria GmbH, Vienna/A	New insights in cell cultivation – online oxygen and pH monitoring in multidishes G.T. John, PreSens Precision Sensing GmbH, Regensburg/D
18:30	Bus Departure from Hotels		
19:00-24:00	Dinner and Poster Award		

Room:	University Auditorium, building 4		
09:00	Chair: K. Bayer, University of Natural Resources and Applied Life Sciences, Vienna/A PLENARY LECTURE: Sustainable production of bio fuels and bio commodity products – chances and challenges – M. Narodoslawsky, Technical University of Graz/A		
09:45	Time for room change		
Room:	Auditorium (anfiteatro) 1.8.1, building 8/9	Auditorium 1.16, building 8/9	Auditorium 1.2, building 8/9
	Solid State Bioprocessing	Biofuel Engineering and Sustainability	Miniaturisation in Bioengineering and Nanobiotechnology
	Chairs: D.A. Mitchell, Universidade Federal do Paraná, Curitiba/BR and M. Berovič, University of Ljubljana/SLO	Chair: M. Narodoslawsky, Technical University of Graz/A	Chair: G.N.M. Ferreira, University of Algarve, Faro/P
09:50	Biochemical engineering challenges for solid-state bioprocessing D.A. Mitchell, L.F.L. Luz Jr., N. Krieger, Universidade Federal do Paraná, Curitiba/BR	Technological challenges in biofuel development: efficient fermentation solutions C. Knocke, K. Rix, J. Vogt, DASGIP AG, Jülich/D	Development of continuous culture microbioreactors D. Schapper, K.V. Gernaey, A. Eliasson Lantz, Technical University of Denmark, Lyngby/DK; S. Stocks, Novozymes A/S, Bagsvaerd/DK; N. Szita, University College London/UK
10:15	Production of antitumor extra and intracellular fungal polysaccharides of <i>Grifola frondosa</i> by submerged and solid state cultivation M. Berovič, B. Boh, B. Wraber, University of Ljubljana/SLO	Enhanced xylose fermentation by altering the coenzyme preference of xylose reductase in metabolically engineered <i>S. cerevisiae</i> B. Petschacher, S. Krahulec, M. Klimacek, B. Nidetzky, Graz University of Technology/A	Enzyme-catalyzed reactions at the microreactor scale P. Žnidaršič-Plazl, A. Pohar, I. Plazl, University of Ljubljana/SLO
10:40	Coffee Break		
	Chair: M. Berovič, University of Ljubljana/SLO	Chair: M. Narodoslawsky, Technical University of Graz/A	Chair: J. Büchs, RWTH Aachen/D
11:00	The potential of solid-state bioprocessing for the production of rhamnolipid biosurfactants N. Krieger, D. Camillos Neto, D.A. Mitchell, Federal University of Paraná, Curitiba/BR	Influence of substrate particle size and wet oxidation on physical surface structures and enzymatic hydrolysis of wheat straw M. Pedersen, Technical University of Denmark, Lyngby/DK; A. Viksø-Nielsen, Novozymes A/S, Bagsvaerd/DK; A.S. Meyer, Technical University of Denmark, Lyngby/DK	Printing nanosized molecular architectures with biomolecules at the diffraction limit: biosensor applications M.T. Neves-Petersen, E. Skovsen, A. Kold, S.B. Petersen, University of Aalborg/DK
11:25	Lipase production and <i>Penicillium simplicissimum</i> morphology in solid-state and submerged fermentations M.L.E. Gutarra, I.A. Guedes, M.G. Godoy, J.N. Silva, U. Lins, L.R. Castilho, D.M.G. Freire, Universidade Federal do Rio de Janeiro/BR	High cell density production of polyhydroxyalkanoates from waste glycerol J. Cavalheiro, Instituto Superior Técnico, Lisboa/P; C. Almeida, Instituto Superior Técnico, Lisboa and Instituto Superior de Ciências da Saúde Egas Moniz, Monte da Caparica/P; M.M. da Fonseca, Instituto Superior Técnico, Lisboa/P	Integrated optoelectronic detection of molecular recognition reactions for lab-on-a-chip application D.M.F. Prazeres, Instituto Superior Técnico, Lisbon/P; A.T. Pereira, Instituto Superior Técnico and INESC Microsistemas e Nanotecnologias, Lisbon/P; A.C. Pimentel, A. Gouvea, V. Chu, INESC Microsistemas e Nanotecnologias, Lisbon/P; J.P. Conde, Instituto Superior Técnico and INESC Microsistemas e Nanotecnologias, Lisbon/P
11:50	Integrated bioprocess for the production of the natural antimicrobial monoterpene <i>R-(+)</i>-perillic acid with <i>P. putida</i> M.-A. Mirata, J. Schrader, DECHEMA e.V., Frankfurt am Main/D	The characterisation and optimisation of biological hydrogen production by <i>Escherichia coli</i> HD701 C.R. Thomas, M. Sulu, University of Birmingham/UK; C.J. Hewitt, Loughborough University, Leicestershire/UK	Colloidal gold nanoparticles for biosensing applications R. Baltazar, G.N.M. Ferreira, University of Algarve, Faro/P
12:15	Lunch		
Room:	University Auditorium, building 4		
13:15	Chair: M. Berovič, University of Ljubljana/SLO Malcolm Lilly Award Presentations		
14:30	Coffee Break		
Room:	Auditorium (anfiteatro) 1.8.1, building 8/9	Auditorium 1.16, building 8/9	Auditorium 1.2, building 8/9
	Bioreaction Engineering	Biocatalysis and Biotransformation	Biothermodynamics
	Chair: K. Bayer, University of Natural Resources and Applied Life Sciences, Vienna/A	Chair: A. Schmid, Technical University of Dortmund/D	Chair: A. Jungbauer, University of Natural Resources and Applied Life Sciences, Vienna/A
15:00	Development of plant cell-based bioprocesses for cyclotides production H. Dörnenburg, University of Erlangen-Nuremberg/D	Process intensification of whole-cell biocatalysis with hydrophobic ionic liquids D. Weuster-Botz, Technical University of Munich, Garching/D	Solubility of biological and industrial important organic compounds F. Tumakaka, G. Sadowski, J.B. Große Daldrup, G. Schembecker, Dortmund University of Technology/D
15:25	Metabolic modelling and characterization of uninfected and infected Sf9 cultures – a basis for improving baculovirus vectors production N. Carinhas, V. Bernal, A.Y. Yokomizo, T. Vicente, Universidade Nova de Lisboa, Oeiras/P; M.J.T. Carrondo, R. Oliveira, Universidade Nova de Lisboa, Oeiras and Universidade Nova de Lisboa, Caparica/P; P.M. Alves, Universidade Nova de Lisboa, Oeiras/P	Improvement of P450 whole-cell biocatalysis with <i>E. coli</i> by combining metabolic and bioprocess engineering H. Schewe, B. Kaup, J. Schrader, DECHEMA e.V., Frankfurt am Main/D	Parameters determining solubility of inclusion bodies and their refolding yield A. Dürauer, W. Sprinzl, A. Jungbauer, R. Hahn, Austrian Center of Biopharmaceutical Technology, Vienna/A
15:50	Production of protein nanoparticles in animal cell cultures L. Pedro, S.S. Soares, G.N.M. Ferreira, University of Algarve, Faro/P	Bioelectrocatalysis with P450 – spectroelectrochemical characterisation of mediated electron transfer S. Zengin, D. Holtmann, K.-M. Mangold, J. Schrader, DECHEMA e.V., Frankfurt am Main/D	Interrelating protein precipitation and hydrophobic interaction chromatography B.K. Nfor, K. Wiedhaup, T. Ahamed, L. van der Wielen, G. van Dedem, M. Ottens, Technical University of Delft/NL; E. van de Sandt, DSM Anti-Infectives, Delft/NL; M. Eppink, N.V. Organon, Oss/NL
16:15	Rhamnolipid biosurfactants network: looking for new ways of biosurfactant production based on renewable resources V. Walter, F. Leitermann, R. Hausmann, C. Syldatk, University of Karlsruhe/D	Bioredox enzymes: fine chemicals applications beyond ketone reductions S. De Wildeman, DSM, Geleen/NL	Temperature-induced conformational changes of pDNA and their influence on histidine-agarose retention – a circular dichroism study F. Sousa, University of Beira Interior, Covilhã/P; D.M.F. Prazeres, Instituto Superior Técnico, Lisboa/P; J.A. Queiroz, University of Beira Interior, Covilhã/P
16:40	Time for room change		
Room:	University Auditorium, building 4		
16:45-17:10	Malcolm Lilly Award / Closing		

//Poster Programme

The poster session will offer an excellent opportunity to discuss scientific and technical results, exchange recent information, facilitate interactions and future collaborations between all participating scientists. The poster topic categories and the topics of the lectures are counterparts and an integral part of the conference.

Bioreaction Engineering & Biocatalysis

- A.1 **Rakkyo gramian as a novel mitogenic factor for mammalian cell culture**
H. Higashiya, S. Terada, University of Fukui/J;
 K. Kobayashi, Fukui Prefectural Food Processing Research Institute/J
- A.2 **Microbial synthesis of α -amylase using elevated pressure**
 T. Jamrath, M. Senz, S. Menschel, M. Kolbe,
M.K. Popovic, TFH-Berlin/D
- A.3 **Methanolysis of triglyceride in a silica monolith bioreactor entrapping highly activated lipase**
K. Kawakami, R. Takahashi, M. Shakeri, S. Sakai,
 Kyushu University, Fukuoka/J
- A.4 **Kinetics of corn gluten hydrolysis by Alcalase**
D.K. Apar, B. Özbek, Yildiz Technical University,
 Istanbul/TR
- A.5 **Effects of pretreatments on corn gluten hydrolysis**
D.K. Apar, B. Özbek, Yildiz Technical University,
 Istanbul/TR
- A.6 **Calibration of pH-stat for corn gluten hydrolysis by Alcalase**
D.K. Apar, B. Özbek, Yildiz Technical University,
 Istanbul/TR
- A.7 **Improvement in antibody productivity of mammalian cells with reuse of spent medium**
A. Ogawa, Suzuka National College of Technology/J;
 N. Takada, S. Terada, University of Fukui/J
- A.8 **Production of extracellular streptavidin by *Escherichia coli***
 E. Flaschel, G. Miksch, J.M. Risse, S. Ryu, University of Bielefeld/D
- A.9 **Modelling of azo dye decolourisation with waste activated sludge in anaerobic bioreactors**
 C. Carvalho, N.D. Lourenço, H.M. Pinheiro, Instituto Superior Técnico, Lisboa/P; A. Morão, I.C. Gonçalves, University of Beira Interior, Covilhã/P

Bioreaction Engineering & Biocatalysis

- A.10 **Development of a high cell-density fed-batch bioprocess for the heterologous production of hSCOMT in *Escherichia coli***
L.A. Passarinha, University of Beira Interior, Covilhã/P;
 M.J. Bonifácio, BIAL, São Mamede do Coronado/P;
 J.A. Queiroz, University of Beira Interior, Covilhã/P
- A.11 **Effects of spectral quality and medium components on *Oldenlandia affinis* suspension cultures**
V. Lürbke, H. Dörnenburg, University of Erlangen-Nuremberg/D
- A.12 **Influence of growth temperature and tryptone concentration on plasmid DNA production**
E. Silva, L.A. Passarinha, F. Sousa, J.A. Queiroz,
 F.C. Domingues, Universidade da Beira Interior, Covilhã/P
- A.13 **An inverse metabolic engineering strategy to direct the antibiotic mycosubtilin biosynthesis toward the anteisoC-17 branched isoform in *Bacillus subtilis***
J.S. Guez, M. Béchet, L. Bonneau, Université des Sciences et Technologies de Lille, Villeneuve d'Ascq/F;
 A.S. Drucbert, P.M. Danzé, Plateforme de Génomique Fonctionnelle de Lille II/F; P. Jacques, Université des Sciences et Technologies de Lille, Villeneuve d'Ascq/F
- A.14 **Application of quinaldine 4-oxidase-containing recombinant *P. putida* as a biocatalyst in hydroxylation reactions**
F.Ö. Bayraktar, S. Gaykawad, Dortmund University of Technology/D; A. Schmid, Dortmund University of Technology and ISAS-Institute for Analytical Sciences, Dortmund/D; B. Bühler, Dortmund University of Technology/D
- A.15 **A simple method for biocatalyst immobilization using PVA based hydrogel particles**
P. Fernandes, M.P.C. Marques, F. Carvalho,
 J.M.S. Cabral, Instituto Superior Técnico, Lisboa/P
- A.16 **Lipase-catalysed synthesis of low caloric structured lipids by incorporation of capric acid in olive oil**
P.A. Nunes, University of Algarve, Faro/P; P. Pires-Cabral, University of Algarve, Faro and Technical University of Lisbon/P; S. Ferreira-Dias, Technical University of Lisbon/P
- A.17 **New device for parallel optical online measurement of DO and pH in shake flask cultures**
K. Schneider, V. Schütz, E. Heinzle, Saarland University, Saarbrücken/D; G.T. John, C. Krause, Presens Precision Sensing GmbH, Regensburg/D

Bioreaction Engineering & Biocatalysis

- A.18 **Influence of the reaction conditions on the enantioselectivity of alcohol dehydrogenases in a gas/solid bioreactor**
A.C. Spiess, K. Nagayma, K. Dimoula, D. Ullisch, RWTH Aachen University/D
- A.19 **Single-use stirred-tank bioreactors for parallel cultivations**
D. Weuster-Botz, Technical University of Munich, Garching/D
- A.20 **Production process of a DOTA conjugated HER2 binding Affibody® molecule**
M.E. Åkerman, F. Dunås, M. Gustafsson, O. Widmark, Affibody AB, Bromma/S; A. Veide, Royal Institute of Technology, Stockholm/S
- A.21 **Treatment of selenium oxyanions in wastewater using selenate-reducing and sulfate-reducing bacteria**
M. Morita, Central Research Institute of Electric Power Industry (CRIEPI), Abiko, Chiba/J; H. Terasawa, Kogakuin University, Tokyo/J; H. Uemoto, Central Research Institute of Electric Power Industry (CRIEPI), Abiko, Chiba/J; H. Unno, Kogakuin University, Tokyo/J
- A.22 **Evaluation of polysaccharide based carriers for enzyme immobilization**
H.-O. Andersson, A. Axén, H. Lindgren, B. Noren, P.-M. Åberg, R. Hjorth, GE Healthcare Bio-Sciences AB, Uppsala/S
- A.23 **Decolourisation and kinetic modelling of a reactive textile dyes mixture by commercial laccase**
A.P.M. Tavares, R.O. Cristóvão, J.M. Loureiro, R.A.R. Boaventura, E.A. Macedo, Universidade do Porto/P
- A.24 **Activity and stability of laccase in the presence of ionic liquids**
A.P.M. Tavares, O. Rodriguez, E.A. Macedo, Universidade do Porto/P
- A.25 **Monitoring the biodegradation of an azo dye and its reduction metabolites using UV-Vis spectroscopy and chemometrics**
N.D. Lourenço, Instituto Superior Técnico, Lisboa/P; J.M. Novais, H.M. Pinheiro, Instituto Superior Técnico, Lisboa/P
- A.26 **Effect of different cultivation conditions on *Trametes versicolor*: morphological image analysis and metabolic production**
A.M.R.B. Xavier, M. Correia, Universidade de Aveiro/P; A.L. Amaral, Instituto Superior de Engenharia de Coimbra/P; E.C. Ferreira, Universidade do Minho, Braga/P

Bioreaction Engineering & Biocatalysis

- A.27 **Dynamic kinetic resolution of 1-phenylethanol with immobilized *Candida antarctica* lipase B and zeolite H-ZSM-5: an application of zeolite shape selectivity**
L. Costa, F. Lemos, F. Ramôa Ribeiro, J.M.S. Cabral, Instituto Superior Técnico, Lisboa/P
- A.28 **Biosurfactant production by *Bacillus subtilis* in batch bioreactor using clarified cashew apple juice as an alternative raw material**
M.E.A. Giro, J.J.L. Martins, Universidade Federal do Ceará, Fortaleza/BR; M.V.P. Rocha, University Federal do Rio Grande do Norte, Natal/BR; L.R.B. Gonçalves, Universidade Federal do Ceará, Fortaleza/BR
- A.29 **Improvement of secretion into the medium of a recombinant protein with *Escherichia coli* during growth on complex and synthetic media**
M. Spexard, Bielefeld University/D; U. Beshay, Mubarak City for Scientific Research & Technology Applications, New Bourg El-Arab, Alexandria/ET; J.M. Risse, G. Mijsch, E. Flaschel, Bielefeld University/D
- A.30 **Breaking away: light induced release of caged nucleotides**
A. Vidal Pinheiro, REQUIMTE-FCT-UNL and CIGMH-UNL, Caparica/P; P.V. Baptista, CIGMH-UNL, Caparica/P; J.C. Lima, REQUIMTE-FCT-UNL, Caparica/P
- A.31 **Bioremediation of samples from a naval base**
C.C.C.R. de Carvalho, M.P.C. Marques, Instituto Superior Técnico, Lisboa/P
- A.32 **Biotransformation of inorganic chromium or/and selenium by yeast cells**
I.D. Barbulescu, A. Ionita, D. Rughinis, R. Balas, P. Minerva, R. Iuksel, S. Nita, G. Raitaru, C. Marin, National Institute for Chemical Pharmaceutical Research and Development - ICCF, Bucharest/RO; O. Popa, N. Babeanu, G. Campeanu, A. Vamanu, Biotehnl Center, Bucharest/RO
- A.33 **Simultaneous degradation of linear and aromatic hydrocarbons by *Rhodococcus erythropolis* cells**
C.C.C.R. de Carvalho, P.S. Ramos-Silva, S.S. Alves, M.M.R. da Fonseca, Instituto Superior Técnico, Lisboa/P
- A.34 **Xylanases from endophytes: production and biochemical characterization**
A. Ersayin Yasinok, F. Sahin, M. Haberal, Baskent University, Ankara/TR
- A.35 **Screening of plants for endophytic xylanase producers**
A. Ersayin Yasinok, F. Sahin, M. Haberal, Baskent University, Ankara/TR

Bioreaction Engineering & Biocatalysis

- A.36 **Production, purification and characterization of alpha-L-arabinofuranosidase from *Scytalidium thermophilum***
A. Ersayin Yasinok, Baskent University, Ankara/TR;
 U. Bakir, Middle East Technical University, Ankara/TR
- A.37 **Bioprocessing for value-added products from biomass: xylooligosaccharide production from agricultural waste**
 U. Bakir, Middle East Technical University, Ankara/TR;
 O. Akpinar, Gaziosmanpasa Üniversitesi, Tokat/TR;
 O. Ak, E. Uckun, L. Yilmaz, Middle East Technical University, Ankara/TR
- A.38 **Metabolic consequences of different media and viral infection of a MDCK cell line**
A. Wahl, J. Ritter, R. Janke, MPI for Dynamics of Complex Technical Systems, Magdeburg/D; U. Reichl, MPI for Dynamics of Complex Technical Systems and University of Magdeburg/D
- A.39 **Sol-gel encapsulation of naringinase towards naringin hydrolysis**
H. Vila-Real, A.J. Alfaia, A.R. Calado, M.H.L. Ribeiro, University of Lisbon/P
- A.40 **Thermal stability studies of fructosyltransferase from *Rhodotorula sp.* immobilized in inorganic support**
 E. Aguiar-Oliveira, F. Mauger, Universidade Estadual de Campinas/SP/BR
- A.41 **Investigating product formation kinetics of recombinant proteins in cultivation processes of *E. coli***
S. Gnoth, F. Wilk, S. Schaepe, A. Kuprijanov, University of Halle-Wittenberg, Halle/Saale/D; R. Simutis, Kaunas University of Technology/LT; A. Lübbert, University of Halle-Wittenberg, Halle/Saale/D
- A.42 **Cellulolytic enzyme production with the commercially important fungus *Trichoderma reesei* – the importance of pH and morphology**
L. Lehmann, L. Olsson, Technical University of Denmark, Lyngby/DK; S. Stocks, H. Jørgensen, Novozymes, Bagsværd/DK; T. Hobley, Technical University of Denmark, Lyngby/DK
- A.43 **Production of surfactin by *Bacillus subtilis* using a bubbleless membrane bioreactor**
F. Coutte, D. Lecouturier, V. Leclère, M. Béchet, P. Jacques, P. Dhulster, ProBioGEM – University of Sciences and Technologies of Lille1, Villeneuve d'Ascq/F
- A.44 **Effect of surfactant on OTR of sulfite system**
M.J. Keshtkar, Gh. Amoabediny, University of Tehran/IR

Bioreaction Engineering & Biocatalysis

- A.45 **Enzymes for engineering a marine exopolysaccharide**
 C. Rigouin, C. Delbarre, S. Collic-Jouault, Ifremer, Nantes/F; C. Tellier, M. Dion, Université Nantes/F

Biofuel Engineering and Sustainability

- B.1 **Influence of buffer systems on *Trichoderma reesei* Rut C-30 morphology and cellulase production**
 S. Ferreira, A.P. Duarte, J.A. Queiroz, F.C. Domingues, University of Beira Interior, Covilhã/P
- B.2 **Determination of ethanol in alcoholic beverages using alcohol dehydrogenase partially purified**
M.F.S. Peres, J.P. Zanon, E.A.L. Gattás, São Paulo State University, Araraquara/BR
- B.3 **Prefermentation improves xylose utilisation in simultaneous saccharification and fermentation of lignocellulose**
M. Bertilsson, K. Olofsson, G. Lidén, Lund University/S
- B.4 **Photobiotechnological hydrogen-production with microalgae**
F. Lehr, C. Posten, University of Karlsruhe/D
- B.5 **Optimization of biodiesel production by triolein transesterification using microencapsulated cutinase in AOT-reversed micelles**
S.M. Badenes, F. Lemos, J.M.S. Cabral, Instituto Superior Técnico, Lisboa/P
- B.6 **Bioethanol production from cashew apple bagasse after pretreatment with diluted sulfuric acid and enzymatic hydrolysis**
M.V.P. Rocha, University Federal of Rio Grande of Norte, Natal/BR; T.H.S. Rodrigues, University Federal of Ceará, Fortaleza/BR; G.R. de Macedo, University Federal of Rio Grande of Norte, Natal/BR; L.R.B. Gonçalves, University Federal of Ceará, Fortaleza/BR
- B.7 **Ethanol production by fermentation of cashew apple juice using immobilized cells of *Saccharomyces cerevisiae***
A.M. Pacheco, University Federal of Ceara, Fortaleza/BR; M.V.P. Rocha, University Federal of Rio Grande of Norte, Natal/BR; L.R.B. Gonçalves, University Federal of Ceara, Fortaleza/BR
- B.8 **Using immobilized *Saccharomyces cerevisiae* in a fluidized bed bioreactor for modeling and simulation of a continuous process for ethanol production**
 G.F. Silva, Tecnologia Bioenergéticas, Fortaleza/BR; L.R.B. Gonçalves, A.L.O. Ferreira, Universidade Federal do Ceará, Fortaleza/BR

Biofuel Engineering and Sustainability

- B.9 **Monitoring the concentration of micro-organisms in real time during biofuel fermentations**
J. Carvell, R. Todd, Aber Instruments Ltd., Aberystwyth/UK
- B.10 **Enzymatic biodiesel production from free fatty acids**
 J.A.P. Coutinho, M.J. Melo, A.J.D. Silvestre, Universidade de Aveiro/P; S.C. Monteiro, Polytechnic Institute of Leiria/P; P.F.F. Amaral, A.I.S. Brigida, M.A.Z. Coelho, Universidade Federal do Rio de Janeiro/BR
- B.11 **Bio ethanol production from dates**
M. Aziza, R. Bessah, F. Kaidi, Renewable Energies Development and Research Centre, Algiers/DZ

Biomedical and Tissue Engineering

- C.1 **Novel serum-free culture medium and cryopreservative solution using sericin hydrolysate**
S. Terada, T. Toyosawa, K. Yanagihara, University of Fukui/J; A. Sakuma, JST-Shiga, Ritto/J; M. Sasaki, K. Tsujimoto, H. Yamada, SEIREN Co. Ltd., Sakai/J
- C.2 **Low-temperature sterilisation of polymers for biomedical applications using sub- and supercritical fluids**
C. Cinquemani, German Textile Research Institute, Krefeld/D; A. Müllen, FEG Textiltechnik, Aachen/D; E. Schollmeyer, German Textile Research Institute, Krefeld/D
- C.3 **Maximization of the ex-vivo expansion of umbilical cord blood hematopoietic stem/progenitor cells by direct contact culture with human mesenchymal stem cells**
F. dos Santos, P.Z. Andrade, C. Lobato da Silva, R.M. Gonçalves, Instituto Superior Técnico, Lisboa/P; G. Almeida-Porada, University of Nevada, Reno, NV/USA; J.M.S. Cabral, Instituto Superior Técnico, Lisboa/P
- C.4 **Expansion of human adult bone marrow mesenchymal stem cells using microcarriers under dynamic culture conditions**
P.Z. Andrade, F. dos Santos, C. Lobato da Silva, A.M. Fernandes, Instituto Superior Técnico, Lisboa/P; G. Almeida-Porada, University of Nevada, Reno, NV/USA; J.M.S. Cabral, Instituto Superior Técnico, Lisboa/P

Bioseparation

- D.1 **Ultrafiltration of a bacterial immunomodulator for pharmaceutical use – experiment and design**
C. Ungureanu, R. Dima, A.A. Chirvase, O. Muntean, University Politehnica of Bucharest/RO; N. Radu, National Institute for Research and Development in Chemistry and Petrochemistry – ICECHIM, Bucharest/RO; A. Onu, A. Salageanu, National Institute for Research and Development for Microbiology and Immunology – Cantacuzino, Bucharest/RO
- D.2 **Purification of monoclonal antibodies using continuous non-affinity chromatography (MCSGP)**
T. Müller-Späth, ETH Zurich/CH; L. Aumann, G. Ströhlein, ETH Zurich and ChromaCon AG, Zurich/CH; M. Morbidelli, ETH Zurich/CH
- D.3 **Temperature induced affinity aqueous two-phase extraction for the purification of Human Immunoglobulin G**
I.F. Ferreira, A.M. Azevedo, P.A. Rosa, M.R. Aires-Barros, Instituto Superior Técnico, Lisbon/P
- D.4 **Assessing adsorbent-biomass deposition during expanded bed adsorption onto process materials utilizing surface energetics**
 R.R. Vennapusa, S.M. Hunegnaw, R.B. Cabrera, H.M. Fernandez-Lahore, Jacobs University, Bremen/D
- D.5 **Evaluating two-dimensional gel electrophoresis as a predictive tool for protein separation during ion-exchange chromatography**
R.B. Cabrera, P. Zhelyazkova, L. Galvis, H.M. Fernandez-Lahore, Jacobs University, Bremen/D
- D.6 **Development of a ligand affinity chromatography for the screening of bacterial redox sensors**
A.B. Carius, I. Ivanov, H. Grammel, MPI for the Dynamics of Complex Technical Systems, Magdeburg/D
- D.7 **Prospective hydrophobic interaction and pseudo-affinity membranes for chromatographic purification of plasmid DNA**
L. Raiado-Pereira, J.A.L. Santos, D.M.F. Prazeres, M. Mateus, Instituto Superior Técnico, Lisboa/P
- D.8 **Aqueous two-phase systems to process soybeans (*Glycine max.*) extracts for the potential recovery of recombinant proteins**
 O. Aguilar, M. Rito-Palomares, Tecnológico de Monterrey/MEX
- D.9 **Use of immobilized chitosan from molds for the sorption of 17 β -estradiol from aqueous solutions**
M. Trutnau, T. Bley, Technical University of Dresden/D; J. Ondruschka, Saxon Institute of Applied Biotechnology (SIAB), Leipzig/D

Bioseparation

- D.10 **Partitioning of *Canavalia brasiliensis* lectin in poly-ethylene glycol – sodium citrate aqueous two-phase systems**
K.S. Nascimento, A.M. Azevedo, Instituto Superior Técnico, Lisboa/P; B.S. Cavada, Federal University of Ceará/BR; M.R. Aires-Barros, Instituto Superior Técnico, Lisboa/P
- D.11 **Systematic design of downstream processes – model parameter based shortcut-design**
T. Winkelkemper, G. Schembecker, Technical University of Dortmund/D
- D.12 **Systematic design of downstream processes – modeling and simulation**
T. Hellenkamp, G. Schembecker, Technical University of Dortmund/D; P. Balling, M. Günther, INOSIM GmbH, Ammersbek/D
- D.13 **Separation of Hev b 1 and Hev b 3 latex allergens by hydrophobic interaction chromatography**
 N.M. Fernandes, C.M. Peixinho, C.T. Tomaz, University of Beira Interior, Covilhã/P
- D.14 **Alternatives for downstream processing of a lipase produced by *Yarrowia lipolytica***
A.I.S. Brígida, Universidade Federal do Rio de Janeiro/BR; L.R.B. Gonçalves, Universidade Federal do Ceará, Fortaleza/BR; M.A.Z. Coelho, Universidade Federal do Rio de Janeiro/BR
- D.15 **Evaluation of toxicity and antimicrobial activity of ionic liquids**
 S.P.M. Ventura, Universidade de Aveiro/P; A.M.M. Gonçalves, Universidade de Coimbra/P; F. Gonçalves, Universidade de Aveiro/P; M.A.Z. Coelho, UFRJ, Rio de Janeiro/BR; I.M. Marrucho, J.A.P. Coutinho, Universidade de Aveiro/P
- D.16 **Recovery of plasmid DNA from pre-treated lysates using tangential flow filtration**
 S.S. Freitas, G.A. Monteiro, D.M.F. Prazeres, J.A.L. Santos, Instituto Superior Técnico, Lisboa/P
- D.17 **Investigation of bacterial xylanolytic system from a soil isolate *Bacillus pumilus* SB-M13**
A. Ersayin Yasinok, Baskent University, Ankara/TR; U. Bakir, Middle East Technical University, Ankara/TR
- D.18 ***In-situ* removal of proteolytic activity using High-gradient Magnetic Fishing**
 K. Ottow, T. Lütken-Petersen, M. Bukowska, Technical University of Denmark, Lyngby/DK; T. Käßler, C. Posten, University of Karlsruhe (TH)/D; J. Brask, Novozymes A/S, Bagsvaerd/DK; J. Villadsen, T. Hobley, Technical University of Denmark, Lyngby/DK

Bioseparation

- D.19 **Biomimetic affinity polymer-particles for antibody recognition**
C.S.O. Silva, Instituto Superior Tecnico, Lisboa/P; M. Lansalot, Ecole Supérieure Chimie Physique Electronique, Lyon/F; C.A.M. Afonso, J.M.G. Martinho, M.A. Taipa, Instituto Superior Tecnico, Lisboa/P
- D.20 **Magnetic adsorbents behaving smartly!**
K. Zourna, T. Willett, H. Liu, E. Theodosiou, O.R.T. Thomas, University of Birmingham/UK
- D.21 **Chromatography matrices with thermo-responsive pore linings**
H. Liu, O.R.T. Thomas, University of Birmingham/UK
- D.22 **Improving the recovery of ‘difficult-to-release’ periplasmically-directed proteins from the outer envelope of recombinant *E. coli***
R. Jalalirad, University of Birmingham/UK; C.J. Hewitt, University of Loughborough/UK; J. Liddell, Avecia Biologics Ltd., Billingham/UK; E. Theodosiou, T.R. Dafforn, O.R.T. Thomas, University of Birmingham/UK
- D.23 **Validation of MonoLEX aptamers by SELDI-TOF mass spectrometry**
 S. Lombardi Borgia, A. Kage, Charité Berlin/D; C. Dahmen, AptaRes AG, Mittenwalde/D; A. Perret-Liaudet, Hôpital Neurologique Pierre Wertheimer, Lyon/F

M3C – Modelling, Monitoring, Measurement & Control

- E.1 **Evaluating prediction uncertainty of fermentation models**
G. Sin, A. Eliasson Lantz, K.V. Gernaey, Technical University of Denmark, Lyngby/DK
- E.2 **Practical identifiability of complex fermentation models: a systematic approach**
G. Sin, K.V. Gernaey, Technical University of Denmark, Lyngby/DK
- E.3 ***In silico* model of the mitochondrial metabolism in cardiac cell undergoing electron transport chain dysfunctions**
 C. Bernal, A. Sevilla, M. Cánovas, J.L. Iborra, University of Murcia/E
- E.4 **Modelling of GFP production in a HCDC of recombinant *E. coli***
 H. Sarwari, University of Applied Sciences Trier, Birkenfeld/D; C. Kaiser, T. Peuker, R. Luttmann, Hamburg University of Applied Sciences/D; K.-U. Gollmer, University of Applied Sciences Trier, Birkenfeld/D

M3C – Modelling, Monitoring, Measurement & Control

- E.5 **Model-based experimental analysis of enzyme kinetics in aqueous-organic biphasic systems**
M. Zavrel, K. Dimoula, T. Schmidt, C. Michalik, T. Schwendt, RWTH Aachen University/D; M. Ansorge-Schumacher, TU Berlin/D; C. Janzen, J. Büchs, W. Marquardt, A. Spieß, RWTH Aachen University/D
- E.6 **Parameter identification of *Streptococcus thermophilus* fermentation model using genetic algorithms**
D. Barth, J. Hörmann, H. Röck, University of Kiel/D
- E.7 **A new feeding strategy to operate Overflowing-Exponential FedBatch Cultures (O-EFBC) at constant specific growth rates: application to the production of biosurfactant by *Bacillus subtilis***
S. Chenikher, J.-S. Guez, P. Jacques, J.-P. Cassar, Université des Sciences et Technologies de Lille, Villeneuve d'Ascq/F
- E.8 **Evaluation of near infrared (NIR) and Raman spectroscopy as PAT tools for adherent VERO cell culture process**
E. Petiot, CNRS, Vandoeuvre-les-Nancy/F; C. Gény, Sanofi Pasteur, Marcy L'Etoile/F; O. Piot, Université Reims/F; H. Pinton, Sanofi Pasteur, Marcy L'Etoile/F; A. Marc, CNRS, Vandoeuvre-les-Nancy/F

Miniaturisation in Bioengineering and Nanobiotechnology

- F.1 **An on-chip, cell-based microarray immunofluorescence assay for high-throughput analysis of target proteins**
T.G. Fernandes, Instituto Superior Técnico, Lisbon/P and Rensselaer Polytechnic Institute, Troy, NY/P; S. J. Kown, Rensselaer Polytechnic Institute, Troy, NY/USA; M.-Y. Lee, Solidus Biosciences, Troy, NY/USA; D.S. Clark, University of California, Berkeley, CA/USA; J.M.S. Cabral, Instituto Superior Técnico, Lisbon/P; J.S. Dordick, Rensselaer Polytechnic Institute, Troy, NY/USA
- F.2 **Multi-step biotransformations throughout scales**
M.P.C. Marques, F. Carvalho, M.J.C. Claudino, P. Fernandes, J.M.S. Cabral, Instituto Superior Técnico, Lisboa/P
- F.3 **A novel online-monitoring system for oxygen in non-conventional fermentations**
M.P.C. Marques, J.M.S. Cabral, P. Fernandes, Instituto Superior Técnico, Lisboa/P

Miniaturisation in Bioengineering and Nanobiotechnology

- F.4 **A simultaneous enzymatic microreaction inside giant vesicles: the system construction and its reaction properties**
T. Kuroiwa, R. Fujita, M. Nakajima, National Food Research Institute and University of Tsukuba/J; K. Uemura, National Food Research Institute, Tsukuba/J; S. Sato, S. Mukataka, S. Ichikawa, University of Tsukuba/J
- F.5 **Au-nanoprobe for gene expression quantification**
P. Severino, CIGMH/DCV - FCT/UNL, Caparica/P; G. Doria, A.V. Pinheiro, CIGMH/DCV and REQUIMTE/DQ - FCT/UNL, Caparica/P; R. Franco, REQUIMTE/DQ - FCT/UNL, Caparica/P; P. Baptista, CIGMH/DCV - FCT/UNL, Caparica/P
- F.6 **Chemiluminescent bead-based hybridization assay for the detection of genomic DNA from the host in purified plasmid samples**
S.A.M. Martins, D.M.F. Prazeres, L.P. Fonseca, G.A. Monteiro, Instituto Superior Técnico, Lisboa/P
- F.7 **Development of an optoelectronic biosensor prototype for DNA detection based on gold nanoparticle probes**
J. Contreras, Prova Essencial and Universidade Nova de Lisboa, Caparica/P; G. Doria, Universidade Nova de Lisboa, Caparica/P; L.B. Silva, Prova Essencial and Universidade Nova de Lisboa, Caparica/P; A. Esteves, Prova Essencial, Caparica/P; R. Franco, E. Fortunato, R. Martins, P. Baptista, Universidade Nova de Lisboa, Caparica/P
- F.8 **Clavulanic acid concentration by nanofiltration**
A.L. Carvalho, M.I. Rodrigues, F. Maugeri, Universidade Estadual de Campinas/BR

Engineering Challenges for Biotechnology Industry

- G.1 **Enzymatic products thermal stability for filter cake removal application**
E. Kameda, N. Kyaw, M.A.Z. Coelho, Universidade Federal do Rio de Janeiro/BR; M.A.P. Langone, Universidade do Estado do Rio de Janeiro/BR; J.C. de Queiroz Neto, CENPES - PETROBRAS, Rio de Janeiro/BR
- G.2 **Stability of immobilised amino acid oxidase from *Trigonopsis variabilis***
S.R. Tindal, Technical University of Denmark, Lyngby/DK and University College London/UK; I. Archer, Ingenza Ltd., Edinburgh/UK; S. Farid, H.C. Hailes, University College London/UK; J.M. Woodley, Technical University of Denmark, Lyngby/DK

Engineering Challenges for Biotechnology Industry

- G.3 **Quality by Design: real-time recording of oxygen uptake in mammalian fed-batch processes as a tool for PAT**
C. Clemens, T.W. Schulz, Boehringer Ingelheim Pharma GmbH & Co. KG, Biberach/Riss/D
- G.4 **Biosurfactant production by *Yarrowia lipolytica* using cashew apple juice**
 G.C. Fontes, P.F.F. Amaral, M.N. de Souza, M.A.Z. Coelho, Universidade Federal do Rio de Janeiro/BR
- G.5 **Innovative down-stream processing in whole-cell biocatalysis using supercritical carbon dioxide**
 Ch. Brandenbusch, B. Bühler, A. Schmid, G. Sadowski, Dortmund University of Technology/D
- G.6 **Production of polygalacturonase by immobilized *Aspergillus* sp.**
E.A.L. Gattas, M.R. Bueno, São Paulo State University, Araraquara/BR; M.H.L. Ribeiro, University of Lisbon/P; M.F.S. Peres, São Paulo State University, Araraquara/BR
- G.7 **Apoptosis assay based on M30 antibody in Chinese hamster ovary cells**
K. Shibuya, R. Haga, M. Namba, Hitachi Ltd./J
- G.8 **Bioprocess design and metabolic flux analysis of antibody fragment-secreting *Bacillus megaterium* MS941 cultivations**
F. David, Y. Göcke, T. Bewersdorf, F. Hellmers, S. Lüders, E. Jordan, M. Hust, S. Dübel, E. Franco-Lara, Technical University of Braunschweig/D
- G.9 **Software-sensor based determination of important process states in biotechnological fermentations**
J. Hörmann, D. Barth, M. Kräling, H. Röck, University of Kiel/D
- G.10 **Characterization and overexpression of a myo-inositol oxygenase fusion protein**
M.-A. Dolnik, E. Srebotnik, B.F. Adamitsch, Vienna University of Technology/A
- G.11 **Comparison of *Arabidopsis thaliana* genotypes at single cell and root level**
R. Palin, C.R. Thomas, J. Pritchard, University of Birmingham/UK
- G.12 **Lipase production optimization and simultaneous detoxification of castor bean waste by solid state fermentation**
 M.G. Godoy, M.L.E. Gutarra, Universidade Federal do Rio de Janeiro/BR; J.V. Bevilaqua, Cenpes-PETROBRAS, Rio de Janeiro/BR; O.L.T. Machado, Universidade Estadual Norte Fluminense, Rio de Janeiro/BR; D.M.G. Freire, Universidade Federal do Rio de Janeiro/BR

Engineering Challenges for Biotechnology Industry

- G.13 **Hydrolytic enzymes in the treatment of wastewater with high oil and grease content**
 M.C. Cammarota, D.M.G. Freire, Federal University of Rio de Janeiro/BR
- G.14 **Improvement of monoclonal antibody production processes by host cell engineering**
E. Becker, L. Florin, H. Kaufmann, Boehringer Ingelheim Pharma GmbH & Co. KG, Biberach a.d. Riss/D
- G.15 **Interest of a non-invasive image analyzer to screen culture media in the case of adherent VERO cell cultures**
E. Petiot, CNRS, Vandoeuvre-les-Nancy/F; C. Gény, H. Pinton, Sanofi Pasteur, Marcy L'Etoile/F; A. Marc, CNRS, Vandoeuvre-les-Nancy/F
- G.16 **A new kind of fully integrated animal cell culture process technology for bioproductions using a disposable bioreactor system and Digital Holographic Microscopy**
D. Ribeiro de Sousa, A.R. dos Santos Pedregal, B. Jawad, C. Yourassowsky, F. Dubois, J. Wérenne, Université Libre de Bruxelles/B
- G.17 **An integrated "high throughput cultivation platform" for physiological characterization of *Streptomyces coelicolor***
P. Bapat, A. Eliasson Lantz, Technical University of Denmark, Lyngby/DK

(Programme subject to change)

//Poster Award Information

At all ESBES conferences, the poster presentation is one of the most important parts of the scientific programme. The organisers thank VOGELBUSCH GmbH, Vienna/A who have provided EUR 330 per prize for the three best student poster presentations for their generous sponsorship.

During the poster session on Monday, September 8, 2008, six posters will be nominated by the scientific committee. The nominees will present their posters in a special session on Tuesday, September 9, 2008. The prize will be awarded to the winners at the conference dinner.

//Last-Minute-Poster Submission

Last-minute posters can be submitted until **July 18, 2008** via file upload at the website www.esbes2008.org. Please find there the detailed information for submitting your abstract. The last-minute posters will be reviewed by the scientific committee. Due to space limitations we can not guarantee the acceptance of all last-minute contributions.

//Exhibition

The exhibition organised in conjunction with this conference offers above all a forum for the companies who are in the business of creatively transforming the latest research results into innovative products in all fields of biochemical engineering science and technology. The exhibitors have the chance to display the full spectrum of instruments, equipment and services to an international expert public.

Located in an area adjacent to the lecture rooms and poster session, the exhibition will be a showcase for all participants and a valuable communication tool.

The registration fee¹⁾ for the standard netto exhibition space with approx. 6 m² will be 800 EUR. The standard netto exhibition space includes one table, two chairs, a standard power supply and two poster walls.

Two free tickets, valid also for the scientific programme, are included in the fee.

1) plus 7% VAT, price per unit for the duration of the exhibition

Exhibition Opening Hours

Sunday	September 7, 2008	18:00 – 19:30
Monday	September 8, 2008	9:00 – 20:00
Tuesday	September 9, 2008	9:00 – 17:00
Wednesday	September 10, 2008	9:00 – 17:00

For further details and for registration please contact:

DECHEMA e.V.
 Claudia Martz
 Theodor-Heuss-Allee 25
 60486 Frankfurt am Main/Germany
 Phone: +49 (0)69 7564-129
 Fax: +49 (0)69 7564-176
 E-Mail: martz@dechema.de
 Internet: www.esbes2008.org

List of Exhibitors (as of May 30, 2008)

Concessus, S.A., Lisbon/P
 m2p-labs GmbH, Aachen/D
 PreSens Precision Sensing GmbH, Regensburg/D

// Welcome Reception

Sunday, September 7, 2008 19:30 – 21:00

To welcome the conference participants, an informal gathering will take place after the evening lecture. Drinks and snacks will be served by invitation of the organisers. Please register on the registration form (free of charge).

// Poster Discussion and Poster Party

Monday, September 8, 2008 17:40 – 20:00

Visit the posters and talk to the exhibitors and to your colleagues with a glass of beer in your hand. All participants are invited to the poster party which will take place in the foyer of the lecture halls between the poster walls and exhibition stands allowing active discussion. Please register on the registration form (free of charge).

// Conference Dinner

Tuesday, September 9, 2008 19:00 – 24:00

Departure: 18:30 by bus from Faro center to Quinta Eventos, the journey takes approx. 30 min.
Meeting Point: in front of the hotels Eva and Faro close to the boat marina.

We would like to invite you to enjoy a special evening at an old farm situated in the mountain area of Eastern Algarve. The farm is an agricultural property dating from the XVIII century. Everything has been restored according to the way it was, and they have maintained the Olive Press and Wine Cellar, as well as other areas and the owner's home.

As seating capacity is limited, please register early to avoid any disappointments!

Location:

A Quinta Eventos
Sto Estevão - Tavira
Phone: +351 969 761 757
www.quintaeventos.com

Cost per person: 70 EUR inclusive a three-course meal, drinks, bus transfer and VAT.
Registration is necessary, please fill in the registration form.

// Conference Site

University of Algarve
Campus de Gambelas
Portaria Nascente, 8000-117 Faro/P

// Conference Office

DECHEMA e.V.
Claudia Martz
Theodor-Heuss-Allee 25
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From Sunday, September 7, 2008 and during the conference:

University of Algarve
Campus de Gambelas
Portaria Nascente, 8000-117 Faro/P
Mobile: +49 (0)162 4141-130
Fax: +351 289 800066 (attn. Ms Lina Lopes, ESBES 2008)
E-Mail: martz@dechema.de

Office Hours

Sunday	September 7, 2008	13:00 – 19:30
Monday	September 8, 2008	9:00 – 20:00
Tuesday	September 9, 2008	9:00 – 17:00
Wednesday	September 10, 2008	9:00 – 17:00

Please note:

Check-in for participants who will attend the workshops will be on **Sunday, September 7, 2008, from 13:00.**

Check-in for participants who will attend the conference will be on **Sunday, September 7, 2008, from 15:00.**

//Registration

Please complete all appropriate sections of the enclosed registration form and return it to DECHEMA e.V. as soon as possible to facilitate the organisation. Please use a separate copy for each participant.

The registration deadline for appearance in the list of participants is **August 4, 2008**. However, later and on-site registrations are possible!

Confirmation of registration and an invoice will be sent after receipt of the registration form. Conference ticket, name tag and a book of abstracts will be available at the conference office in Faro.

//Registration Fees

The registration fees include admission to the lecture and poster programme, the exhibition, the list of participants, a book of abstracts as well as the welcome reception on Sunday, September 7, 2008, the poster party on Monday, September 8, 2008, and the soft drinks during the coffee breaks.

Conference tickets ¹⁾

Participant	Early registration until July 15, 2008	Late registration from July 16, 2008
Delegate	530 EUR	630 EUR
Student ²⁾	240 EUR	240 EUR

1) no VAT requested acc. to § 4.22 UStG

2) only with student identity card

//Remittance of Fees

Fees should be remitted after receipt of the invoice in favour of DECHEMA e.V., using the keyword ESBES 2008 and stating the invoice number and the name of the participant, to one of the DECHEMA accounts given on the invoice.

Payment by credit card (MasterCard, VISA, AMEX, DINERS) is also possible.

Please note that at the conference office only payment in cash in Euro or by credit card can be accepted, but no other currency.

//Cancellation and Refunds

30 EUR administrative costs will be charged for cancellations of registrations received before **August 4, 2008**. Thereafter, 80% of the registration fee will be invoiced, however, the book of abstracts will be sent. Only written cancellations will be accepted (letter, fax or email).

Cancellations for the conference dinner will be accepted free of charge by **August 4, 2008**. After that date the full amount will be charged.

//Visa Formalities

Participants from a number of countries may need an entry visa for Portugal. It is recommended that the visa should be applied as soon as possible in advance of the meeting. If a formal invitation letter is needed please contact the conference office at DECHEMA e.V. (www.esbes2008.org) in good time.

//Insurance

The organisers are not responsible for loss or damage to the private property of participants which may occur either during or arising from the conference. Participants should therefore take whatever steps they consider necessary for their insurance.

//Accommodation

Rooms have been reserved in several hotels in Faro (keyword ESBES 2008). Please find a list of all hotels where rooms are blocked especially for participants of ESBES-7 (prices subject to change) on the internet at www.esbes2008.org.

A shuttle bus between Hotel Eva and Hotel Faro and the university campus will be provided by the ESBES 2008 organisation. Detailed information will be given later.

Hotel rooms are available at different rates and categories. Due to the fact that Faro attracts many visitors we highly recommend booking hotel rooms at your earliest convenience. The reservations are binding. Charges for rooms which are not used, or cancelled too late, must be paid by the participant.

//Faro

The history of Faro remounts to the Palaeolithic age with the growing up of a small settlement – Ossonoba – which was further an important town during the period of Roman occupation. During the Moorish rule in the 8th century Ossonoba retained its status as the most important town in the southwest corner of the Iberian Peninsula. Ossonoba was renamed Santa Maria as it was fortified with a ring of defensive walls in the 9th century and became the capital of a Moorish principedom. In 1249 Faro became part of Portuguese territory, completing the Christian reconquest of what is now Portugal. In the centuries that followed Faro became a prosperous place, thanks to its geographical position, its safe harbour and growing trade – in salt and agricultural products from the interior of the Algarve – increased by the voyages of exploration known as the Discoveries. Faro was elevated to the status as a city in 1540. Its steady growth and its importance in the regional context were such that it was chosen as capital of the Algarve province at the time of the administrative reorganisation which took place in the 19th century. Faro has a rich artistic heritage and many museums, hotels, restaurants and other facilities. Many attractions are offered in the surrounding area, from the long beaches of Faro to the Marina and Golf courts in Villamoura and the Roman ruins at Milreu.



//How to reach Faro

By Air: Faro's international airport is located 6 km to the west of the city, 30 min. by bus no. 14 and 16 and approx. 15 min. by taxi.

By Train: Faro railway station is in walking distance (5 min.) from the city centre. Intercity and Interregional trains from Lisbon and Porto are available. For information on train connections see www.cp.pt

By Car: Faro is connected by the National High Way net work. The journey from Lisbon is about 320 km on the A2 High Way.

A map of Faro is available as pdf for download on the internet at www.esbes2008.org.

//How to reach the University of Algarve

The university can be reached by bus from the city centre. Busses 15 and 18 take approx. 30 to 45 min. Address: Campus de Gambelas, 8000-117 Faro/P.

By taxi from the city centre or from the airport, the journey takes about 15 min. and costs approx. 10 EUR.

A shuttle bus between selected Hotels in Faro and the university campus will be provided by the ESBES 2008 organisation.

Detailed information available on the internet at www.esbes2008.org.

A map of the university campus is available as pdf for download on the internet.

//ESBES General Assembly

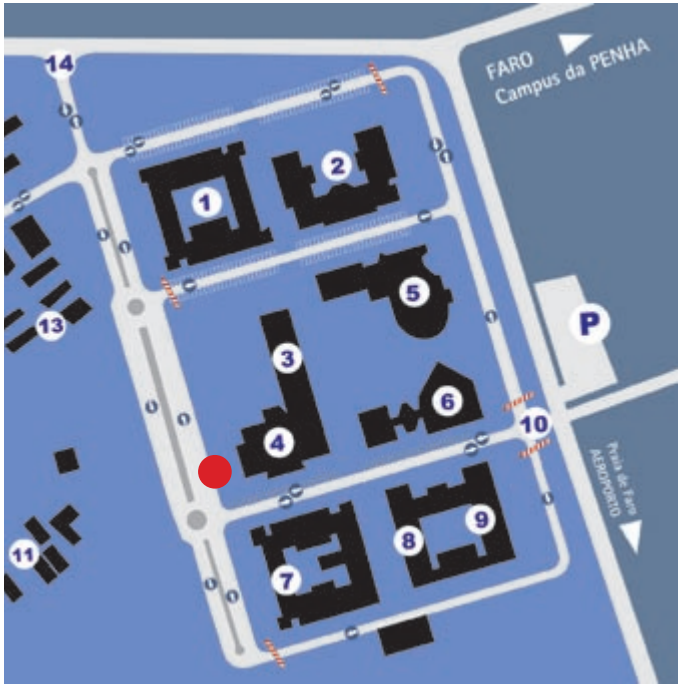
The General Assembly of the EFB Section on Biochemical Engineering Science (ESBES) will take place on Monday, September 8, 2008 from 11:45 – 13:00 at room Auditorium 1.2, building 8/9.

//M3C Meeting

The M3C meeting of the Working Group on Modelling, Monitoring, Measurement & Control (M3C-WG) will take place on Tuesday, September 9, 2008 from 12:15-13:15 (room to be announced).

//DSP Meeting

The meeting of the Working Group on Downstream Processing (WGDSP) will take place on Wednesday, September 10, 2008 from 12:15-13:15 at room Auditorium 1.2, building 8/9.



- Bus Shuttle Stop
- 4 Plenary Lectures – University Auditorium
- 8+9 Parallel Sessions and Poster Session
- 14 Entrance Gate