### SCIENTIFIC PROGRAM

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<tr>
<th>Time</th>
<th>Tuesday, 2/10</th>
<th>Wednesday, 3/10</th>
<th>Thursday, 4/10</th>
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<tr>
<td>8:00</td>
<td>Registration</td>
<td>Plenary Lecture (PL3) Rajamani Krishna</td>
<td>Plenary Lecture (PL5) Gabriele Centi</td>
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<td>Plenary Lecture (PL1) Nien-Hwa Linda Wang</td>
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<td>O-RS03 O-BB03 O-MP02</td>
<td>O-BB12 O-EE06 O-ME01</td>
<td>Plenary Lecture (PL6) Nikolaos Hadjichristidis</td>
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<td>O-BB13 O-EE07 O-ME02</td>
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<td>O-BB14 O-EE08 O-ME03</td>
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<td>14:15</td>
<td>Keynotes (KN1 and KN2) João Rocha Rosa Quinta-Ferreira</td>
<td>Keynotes (KN3 and KN4) Adélio Mendes José António Teixeira</td>
<td>Keynotes (KN5 and KN6) Maria Ascensão Reis Ramesh Gardas</td>
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<td>O-RS07 O-BB07 BB&amp;G</td>
<td>Plenary Lecture (PL4) Maria José Cocero</td>
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<td>O-IM02 O-BB06 O-RS10</td>
<td>O-MP05 O-IM09 O-IM14</td>
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<tr>
<td>16:15</td>
<td>Poster Session and Coffee-break P-BB, P-RS, P-MP</td>
<td>Awards and Closing Session</td>
<td>Multibiorefinery Project Meeting (coffee-break)</td>
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[PL] - Plenary Lecture  
[KN] - Keynote Presentation  
[RS] - Reaction and Separation Processes  
[BS] - Biorefinery and Sustainability  
[MP] - Modeling, Synthesis and Integration of Chemical Processes  
[BB] - Biological Engineering and Biotechnology  
[IM] - Innovative Materials and Applications  
[EE] - Energy and Environment  
[ME] - Multiscale and Multidisciplinary Engineering Education
Plenary lectures [PL]

[PL01]
Simulated moving beds: fundamental principles, enabling technologies, and applications
   Nien-Hwa Linda Wang, Purdue University

[PL02]
Novel Hybrid Organosolv: Steam explosion-based integrated biorefinery of the lignocellulosic biomass (an evolution from pretreatment to fractionation processes)
   Paul Christakopoulos, Luleå University of Technology

[PL03]
Exploiting entropy effects in separations with microporous crystalline adsorbent materials
   Rajamani Krishna, University of Amsterdam

[PL04]
Overcoming the challenges of the sustainable biorefinery: supercritical water ultrafast processes
   María José Cocero, University of Valladolid

[PL05]
Beyond fossil fuels for a transformative energy and chemistry
   Gabriele Centi, University of Messina

[PL06]
The importance of model polymers in polymer science and industry
   Nikolaos Hadjichristidis, King Abdullah University of Science and Technology

Keynotes presentations [KN]

[KN01]
The importance of being porous: silicates and functional MOFs
   João Rocha, CICECO, University of Aveiro

[KN02]
Advanced reaction processes, wastewater treatment and reuse
   Rosa M. Quinta-Ferreira, University of Coimbra

[KN03]
Harvesting and storage of solar energy: a promising new world for off the grid residences?
   Adélio Mendes, University of Porto
[KN04]
Oscillatory flow reactors – a platform for process intensification
José António Teixeira, University of Minho

[KN05]
Shifting organic waste paradigm: from accumulation to valorisation into biopolymers
Maria Ascensão M. Reis, Nova University of Lisbon

[KN06]
Ionic liquids as additives for enhancing extraction, absorption and dissolution processes
Ramesh L. Gardas, Indian Institute of Technology Madras

Oral session | Biological Engineering and Biotechnology [O-BB]

[O-BB01]
Production of erythritol by Yarrowia species from crude glycerol, P. Ferreira, A.M. Ribeiro, A.R. Machado, E. Nagy, N.D. Quang, I. Belo

[O-BB02]
Comparing the operation of aerobic granular sludge bioreactors under different hydrodynamic regimens during the treatment of textile wastewater containing silver nanoparticles, M. Coelho, S. Sousa, A. Rodrigues, R. Franca, C. Viegas, H. Pinheiro, N. Lourenço

[O-BB03]
Assessing the influence of the adsorption time on the build-up of natural-origin polymeric multilayered systems: how fast can we go?, T. Pesqueira, J. Borges, J.F. Mano

[O-BB04]

[O-BB05]
Aerobic granular sludge process treats real fish canning wastewater, A.M.S. Paulo, C.L. Amorim, P.M.L. Castro

[O-BB05]
Water2Return: towards the total recovery of nutrients from the sewage water in a slaughterhouse, C.A. Aragon, A. Real, I. Martin, K. Fahd, J. Parrado, P. Caballero

[O-BB07]
Yarrowia lipolytica as a potential producer of 2-phenylethanol from L-phenylalanine bio-transformation, A. Braga, A. Oliveira, B. Freitas, E. Nagy, Q. Nguyen, I. Belo

[O-BB08]
A microfluidic platform for optimization of downstream process of biopharmaceuticals, R.A.-Barros, A. Azevedo
[O-BB09]
**Sustainable production of plastic building blocks by enzymatic biocatalysis**, Y.M.-Díz, F. Man- teiga, G. Feijoo, M.T. Moreira

[O-BB10]
**Designing humanized hydrogels toward tissue engineering and disease modeling**, C. Custó- dio, S. Santos, C. Monteiro, J. Mano

[O-BB11]
**Valorization of coffee wastes through acidogenic fermentation**, J. Pereira, P.C. Lemos, L.S. Serafim

[O-BB12]
**Non-ionic surfactants as a pretreatment to optimize PHA extraction from mixed microbial cultures**, B. Colombo, J. Pereira, M. Martins, S.P.M. Ventura, F. Adani, L.S. Serafim

[O-BB13]
**Design of a periodic counter-current chromatography process for efficient oncolytic virus purification**, R. Silva, J. Mendes, M. Berg, L. Mathiason, C. Peixoto, P.M. Alves, M.J.T. Carrondo

[O-BB14]
**Novel nano-engineering phytantriol-F127-based cubosomes for antibiotic delivery**, J. Domin- gues, M. O. Pereira, A.M. Sousa, B. Silva

[O-BB15]
**Genotoxicity analysis of different magnetite-based nanoparticles applied in chemical catalysis processes**, M. Gamallo, S. Silva, M. Pintado, G. Feijoo, M.T. Moreira

**Oral session | Biorefinery and Sustainability [O-BS]**

[O-BS01]
**Production of ethanol from Pinus pinaster stump wood extracted pulp and lignin recovery**, C. Mendes, R. Moreira, A. Portugal, M.G. Carvalho

[O-BS02]

[O-BS03]
**Biorefinery approach for obtaining pigments, sugars and a protein-rich residue from microalgae**, M.F. de Souza, M.A. Rodrigues, E.P.S. Bon, S.P. Freitas

[O-BS04]
Polyols: efficient solvents to extract phenolic compounds from walnut leaves, V. Vieira, Â. Fernandes, M.A. Prieto, R. Calhelha, L. Barros, J.A.P. Coutinho, I.C.F.R. Ferreira, O. Ferreira

Supercritical CO$_2$ extraction of Eucalyptus globulus bark: Techno-economic optimization of the industrial process, V.H. Rodrigues, M.M. R. De Melo, I. Portugal, C.M. Silva

Aqueous solutions of surface-active agents on the recovery of violacein from Yarrowia lipolytica cells, M. Kholany, J. Vieira, M. Martins, S. Ventura, P. Trêbulle, J.-M. Nicaud, J.A.P. Coutinho


FCC Feedstocks/Bio-oils Co-processing: Towards understanding of phenolic compounds impact on Ni- and V-USY zeolites, R. Gerards, I. Graça, F. Ribeiro

Oral session | Reaction and Separation Processes [O-RS]

Separation of nadolol racemates by high pH reversed-phase simulated moving bed chromatography, R.S. Arafah, A. Ribeiro, A.E. Rodrigues, L. Pais


Ethylene/ethane separation by gas-phase SMB in binderless Zeolite 13X monoliths, autores

An alternative method for the separation of C2/C3 hydrocarbons mixtures by pressure swing adsorption using the MOF MIL-100(Fe), V. Martins, R. Seabra, P. Silva, A. Ribeiro, J.-S. Chang, J. Loureiro, A. Ferreira, A.E. Rodrigues


Removal and recovery of technology-critical elements from aqueous solutions using Fe$_2$O$_3$/graphite nanoplatelets, E. Afonso, L. Carvalho, C. Vale, E. Pereira, C.M. Silva, T. Trindade, C.B. Lopes

Mixing of dissimilar fluids in confined impinging jets – Mayonnaise equation, M.S.C.A. Brito, C.P. Fonte, M.M. Dias, J.C.B. Lopes, R.J. Santos

Removal of the mixture of pharmaceuticals sulfamethoxazole and diclofenac from water streams by a polyamide nanofiltration membrane, D. Gomes, R. Martins, R.Q.-Ferreira, L.G.-Ferreira

Assessment of the influence of clearance and agitation on the nucleation rate and particle size distribution in anti-solvent crystallization process of a drug substance, A. Tulcidas, B. Santos, S. Pawlowski, F. Rocha

Glycerol steam reforming for hydrogen production: traditional versus membrane reactor, S. Macedo, M. Soria, L. Madeira

Monitoring the transesterification reaction by continuous off-line density measurements, N. Prieto, A. Ferreira, A. Portugal, R. Moreira

Multifunctional reactors for biogas upgrading through CO$_2$ methanation: thermodynamic considerations, A.C. Faria, C.V. Miguel, L.M. Madeira


Plug Flow Reactor Analysis By Minimum Entropy, D. Rosa, P. Góes, J. Manzi

Acidic aqueous biphasic systems: a new paradigm for the ‘one-pot’ extraction of critical metals, N. Schaeffer, M. Gras, H. Passos, V. Mogilireddy, I. Billard, N. Papaiconomou, J.A.P. Coutinho


Modelling studies of supercritical fluid extraction of oils from grape and chia seeds, R. Filipe, J. Coelho, D.V.-Bermejo, T. Fornari, R. Stateva
Oral session | Energy and Environment [O-EE]


[O-EE02] Optimization of a passive direct methanol fuel cell with different current collector materials, B.A. Braz, V.B. Oliveira, A.M.F.R. Pinto


[O-EE05] Intensifying heterogeneous TiO$_2$ photocatalysis for bromate reduction: A static mixer as catalyst support, D. Morais, F. Moreira, R. Boaventura, V. Vilar

[O-EE06] Life cycle assessment of woody biomass bottom ash valorization in bituminous asphalt, T.P. da Costa, P. Quinteiro, L. Tarelho, L. Arroja, A.C. Dias

[O-EE07] Comparison of radical driven technologies applied for parabens mixture degradation, M. Gmurek, J. Gomes, R.C. Martins, R.M. Q.-Ferreira


[O-EE09] Photo-electro-Fenton process for the treatment of highly polluted effluents. Importance of the operational variables, A.M.D. Sarabia, M. Pazos, M.A. Sanromán

[O-EE10] Valorization of spent coffee grounds as biosorbent for the retention of fluoxetine from water – a cost-effective alternative to activated carbon, B. Silva, V. Rocha, A. Lago, T. Tavares


[O-EE12] Intensifying heterogeneous photocatalysis for bromates reduction using the NETmix photoreactor, S. Santos, L. Paulista, T. Silva, R. Boaventura, M. Dias, J.C. Lopes, V. Vilar

Simultaneous desulfurization and denitrogenation of fossil fuels, F. Lima, A. Silvestre, L. Branco, I. Marrucho

New ecofriendly cheap spacers for efficient monolithic dye sensitized solar cells, F. Santos, D. Ivanou, J. Maçaira, A. Pereira, A. Mendes

Beating the performance of solar charging redox flow batteries based on a hematite photoelectrode, P. Dias, J. Azevedo, A. Mendes

Evaluation of different pre-treatment systems for the energy recovery of greenhouse agriculture wastes in a clinker production plant., L.M.G. Fernández, B.N. Rubia, R.G. Falcón, F.V. Borrero

**Oral session | Innovative Materials and Applications [O-IM]**


Catalytic mineralization of formaldehyde by molybdovanadophosphate polyanions supported on cellulose-silica hybrids, A. Granja, J. Gamelas, M. Evtyugina, I. Portugal, D. Evtyugin

Hybrid ionic liquids/metal organic frameworks – IL@MOFs - for Gas Separation, T. Ferreira, A. Vera, B. de Moura, R. Ribeiro, J. Mota, L. Rebelo, J. Esperança, I. Esteves


Microencapsulation of marine chlorella by spray drying, A. Matias, S. Oliveira, M.C. Pereira, A.A.-Bautista, N. Fernández

Emulsion-coacervation method for the encapsulation of carotenoids, A. Roda, P. Oliveira, V. Gonçalves, A. Matias, F. Gaspar

Insights into polymer-silica aerogel composites from a molecular modelling and simulation approach, M. Oliveira, P. Santos, L. Durães, P. Simões
Novel Alginate-Chitosan aerogel fibres for potential wound healing applications, M.P. Batista, V. Gonçalves, F.B. Gaspar, P. Gurikov, A. Matias

Cr(III) Removal from Aqueous Solution by Activated Carbons obtained through the Co-pyrolysis of Wastes from Rice Production, D. Dias, M. Bernardo, N. Lapa, F. Pinto, I. Matos, I. Fonseca

Overcoming the mass transport limitations of amino acid-based ionic liquids in CO₂ chemical absorption by using Encapsulated Ionic Liquids, J. Lemus, R. Santiago, C. Lemus, D. Moreno, J. Palomar [O-IM10]

Preparation of ceramic and metallic monolithic catalysts for VOC abatement., D. Santos, O. Soares, J. Figueiredo, O. Sanz, M. Montes, M. Pereira

Novel hydroxyapatite-TiO₂ composite material for photocatalytic degradation of diclofenac, I.S. Moreira, S. Murgolo, C. Piccirillo, G. Mascolo, P.M.L. Castro

P-doped glucose-derived carbon/carbon nanotubes hybrids for oxygen reduction reaction, R. Morais, N. Raap, M. Granja, M. Pereira, J. Figueiredo

Hybrid Polysaccharide Membranes for Dehydration Processes, I.T. Meireles, S. Fraga, R. Hurtetas, C. Brazinha, C. Torres, M. Reis, J. Creso, I. Coelho

Production of biomaterial composed by natural polymers, V. Soeiro, L. Tundisi, P. Mazzola, E. Tambourgi, M. Chaud, A. Joštala,

Oral session | Modeling, Synthesis and Integration of Chemical Processes [O-MP]


From the traditional packed-bed reactor to the sorption-enhanced membrane reactor: a step towards H₂ production optimization through glycerol steam reforming, J. Silva, L. Ribeiro, J. Órfão, S. Tosti, M. Soria, L.M. Madeira

Window-based feature methods for end-of-batch quality prediction, R. Rendall, I. Castillo, A. Schmidt, S.-T. Chin, L. Chiang, M. Reis

Oral session | Multiscale and Multidisciplinary Engineering Education [O-ME]

[O-ME01] Introduction to systems engineering and sustainability for chemical and biological engineers. U. Tuzun

[O-ME02] Assessing bioethics perception among master and PhD students in chemical and environmental engineering in the University of Santiago de Compostela, M.T. Moreira, G. Feijoo

[O-ME03] Virtual labs: tools to enhance students autonomy in Chemical Engineering education, M.G. Rasteiro, D. Urbano, J. Granjo

[O-ME04] Understanding the effect of oxygen on microbial growth – teaching bioprocess engineering to biotechnology students, A.M.R.B. Xavier, L.S. Serafim

Poster session | Biological Engineering and Biotechnology [P-BB]

[P-BB01] Centrifugal partition chromatography on the separation of phenolic compounds derived from lignin depolymerization, J.H.P.M. Santos, M.R. Almeida, A.C.R.V. Dias

[P-BB02] Phototrophic enhanced biological phosphorus removal: a solution for reducing the aeration necessities in conventional enhanced biological phosphorus removal system, V. Carvalho, E. Freitas, P. Silva, J. Fradinho, A. Oehmen, M. Reis


[P-BB05] Bioethanol production from kraft pulp in a circular economy perspective, R. Branco, J. Pinho, L. Serafim, A. Xavier

[P-BB06] Polyhydroxyalkanoates production from agricultural wastes and domestic wastewater with phototrophic purple bacteria, J. Fradinho, B. Pereira, J. Almeida, A. Oehmen, M. Reis

[P-BB07] Optimization of operating conditions in accumulator reactors for improved polyhydroxyalkanoates production with phototrophic purple bacteria, J. Fradinho, A. Oehmen, M. Reis


[P-BB11] NMR kinetic and cytotoxicity studies of sesquiterpene lactones, M. S. Silva, J. Barbosa, R. Costa, I. Gonçalves, M. Bastos


[P-BB14] Understanding the ionic liquid role as adjuvants in polymer-based aqueous biphasic system, C. Neves, R. Sousa, M. Pereira, M. Freire, J. Coutinho

[P-BB15] The potential of bacterial cellulose as hemostatic material, E. Queirós, S. Pinheiro, P. Parpot, M. Gama

[P-BB16] Bacterial Cellulose as a stabilizer for oil-in-water emulsions, D. Martins, A. Fontão, F. Dourado, M. Gama

[P-BB18]
Density and sludge volume index estimation in mature aerobic granular sludge by quantitative image analysis and chemometric tools, C. Leal, Á.V. del Rio, A. Zlatkova, B. Araújo, D. Mesquita, A. Amaral, E. Ferreira

[P-BB19]

[P-BB20]

[P-BB21]
Application of enzyme technology in the improvement of wastewater treatment systems, C.A. Aragon, A. Real, I. Martin, K. Fahd, J. Parrado, P. Caballero

[P-BB22]

[P-BB23]
Toxicity of ammonium-based zwitterions to aquatic organisms, H. Passos, F. Gonçalves, F. Jesus, J.A.P. Coutinho, S. Ventura

[P-BB24]
Unraveling the ecotoxicity of deep eutectic solvents using the mixture toxicity theory, F. Jesus, I.P.E. Macário, J.L. Pereira, S. Ventura, A.M.M. Gonçalves, J.A.P. Coutinho, E.J.M. Gonçalves

[P-BB25]
The contribution of carbomer in pluronic-based thermoreversible gels of carbamazepine, J. Ferreira, P. Pires, G. Alves, A.O. Santos

[P-BB26]
Production of second generation bioethanol from unbleached Kraft pulp of Eucalyptus Globulus, M. Amândio, R. Branco, L. Serafim

[P-BB27]
Effect of glycerol on the anaerobic co-digestion of the organic fraction of municipal solid wastes, A. Deodato, E. Surra, N. Lapa

[P-BB28]
Valorise saline wastewaters through the production of polyhydroxyalkanoates (PHA) biopolymers by mixed microbial consortia (MMC), B. Marreiros, S. Mateus, C. Oliveira, M.A. Reis

[P-BB29]
Bio-electro-Fenton hybrid process as a pausible methodology for the degradation of ionic liquids, M. Arellano, N. Oturan, M.A. Sanromán, M. Pazos, M. Oturan

[P-BB30]
Study of Kefir production, J. Anjos, A. Lei, L. Serafim, A. Xavier

[P-BB31]
Integrating biocatalytic processes by using thermoreversible aqueous biphasic systems, A. Ferreira, H. Passos, A Okafuji, H Ohno, A.P.M. Tavares, M.G. Freire, J.A.P. Coutinho

Activation of laccase in the presence of natural deep eutectic solvents, M. Toledo, M. Pereira, M.G. Freire, J.P. Silva, J.A.P. Coutinho, A.P.M. Tavares

Supported ionic liquids for the removal of cyclophosphamide from aqueous solutions, B. Rocha, M. Neves, A.C. Sousa, T. Trindade, M. Freire

Valorization of spent coffee grounds with supercritical fluids, J.P. Coelho, F. Campos, M.P. Robalo, G.St. Cholakov, S. Boyadzieva, R.P. Stateva

Behavior of lactoferrin nanohydrogels incorporating curcumin as model compound into food simulants, J.F. Araújo, A.I. Bourbon, A.A. Vicente, P. Coutinho, O.L. Ramos

Supported ionic liquids as efficient adsorbents for the removal of Bisphenol A, G. Sousa, M. Neves, A. Sousa, T. Trindade, M. Freire

Comparative evaluation of the efficiency of acid pretreatment in energy cane in relation to sugarcane bagasse, R. Alves, É. Araujo, L. Campos, S. Assumpção, L. Pontes

Extraction of laccase from Trametes versicolor growth media using aqueous biphasic systems, M. Rosa, C. Neves, A. Xavier, A. Tavares, M. Freire

Exploring glutathione as an adjuvant of anti-biofilm strategies against Pseudomonas aeruginosa, R. Monteiro, M.O. Pereira, A.M. Sousa

Novel glycine betaine ionic liquids analogues as components of aqueous biphasic systems with improved performance to separate amino acids, A. Rufino, M. Rosa, M. Pereira, M. Almeida, J. Gomes, J. Coutinho, M. Freire, A. Mohamadou

Ionic-liquid-based aqueous biphasic systems as enhanced extraction platforms for bovine serum albumin, A. Rufino, M. Almeida, M. Sharma, J. Coutinho, M. Freire

Removal of dyes using surfactant ionic liquids for in situ biodegradation with laccase, R. Bento, M. Neves, J. Coutinho, M. Freire, A. Tavares

Dinoflagellates: unique microalgae for sustained supply of bioactive compounds, J.L. Assunção, A.C. Guedes, F.X. Malcata

Biological-based ionic liquids as novel preservation media for recombinant RNA, A. Pedro, P. Pereira, M. Quental, A. Carvalho, S. Santos, J. Queiroz, F. Sousa, M. Freire


Isolation and preliminary characterization of a new bacteriophage against Sphaerotilus natans, R. Ferreira, R. Cardoso, J. Padrão, S. Santos, V. Ferreira, S. Cortez, J. Azeredo, M. Mota, A. Nicolau

Bioengineered in vitro 3D hydrogel-based cancer model using chemically modified biopolymers, V. Gaspar, M. Monteiro, J. Mano

Dual nanomaterial systems aiming antimicrobial activity and cancer treatment, P. Correia, C. Aguiar, A.M. Fonseca, F. Baltazar, I. Neves


Effect of processing on the antioxidant activity of different varieties of peppers (Capsicum annuum), M. Serra, N. Alua

Bacterial degradation of the veterinary antibiotic florfenicol, A.T. Couto, C.L. Amorim, P.M.L. Castro

Changes in the biochemical composition of selected Tetraselmis species, cultured semi-continuously under distinct renewal rates, V. Pójo, A. Otero, F.X. Malcata


Extraction and characterization of cell-wall polysaccharides from Komagataella pastoris, I. Farinha, A. Pimentel, R. Branquinho, C. Grandfils, C. Sevrin, E. Fortunato, M.A.M. Reis, F. Freitas


Bacterial cellulose production through hydrolysates produced with cellulosic residues, F. Garrett, A.E. Rodrigues, F. Dourado, M. Gama

Assessment of agroforestry residues potential within the biorefinery context, M. Gaspar, C. Mendes, S. Pinela, R. Moreira, M.G. Carvalho, M. Quina, M. Braga, A. Portugal

One-pot conversion of furfural to bioproducts over mesoporous bimetallic catalysts, M. Antunes, S. Lima, A. Fernandes, M.F. Ribeiro, D. Chadwick, K. Hellgardt, M. Pillinger, A. Valente


Sequential extraction of phycocyanin and chlorophyll from Anabaena cylindrica, T. Sintra, M. Martins, I. Macário, S. Bagagem, J. Pereira, F. Gonçalves, J. Coutinho, S. Ventura


Experimental measurement and thermodynamic modeling of flow parameters sebum biodiesel cold, C.Lira, I. Araújo, A. Stragevitch

Microwave drying and/or extraction of bioactive compounds from industrial by-products, C.P. Passos, S.S. Ferreira, S. Cardoso, D. Wessel, G.R. Lopes, A. Rudnitskaya D.V. Evtuguin, M.A. Coimbra

[P-BS13] Simultaneous degradation of hydrocarbons and production of valuable compounds by Yarrowia lipolytica, M. Lopes, R. Ramôa, S. Miranda, I. Belo


[P-BS16] Sustainable microalgae biorefinery development through process optimization, A.F. da Silva, L. Costa, C. Brazinha, N. Caetano [P-BS16]

[P-BS17] Oxidative degradation of vanillin, vanillic acid and acetovanillone, F. Casimiro, C. Costa, A.E. Rodrigues

[P-BS18] Extraction of carotenoid pigment from brown crab residues using high pressure technology, A. Roda, A. Nunes, A. Matias


[P-BS20] Phosphorus Adsorption onto Biochars from Pyrolysis and co-Gasification of Agricultural Biowastes, A. Félix, M. Bernardo, N. Lapa, F. Pinto, C.D.-Matos, I. Fonseca


[P-BS22] Phase behavior of binary mixtures of saturated fames and alkanes, N. Branco, J. Coutinho, L. Santos, J. Ribeiro

[P-BS23] Life cycle assessment of supercritical fluid extraction of lycopene from tomato residues, M.M.R. De Melo, C.M. Silva, N. Caetano, T. Mata, A. Martins

[P-BS25] Extraction and recovery of phenolic compounds from biomass residues using aqueous solutions of ionic liquids, E. Faria, A.F. Cláudio, J. Coutinho, A. Silvestre, M. Freire

[P-BS26] Oxidative polymerization of magnesium-based lignosulphonates from acidic Eucalyptus globulus sulfate pulping by laccase: preliminary results, S. Magina, A.B.-Timmons, D.V. Evtuguin

[P-BS27] Valorization of Quercus cerris cork by supercritical extraction with modified carbon dioxide as green and efficient solution in relation to the classical extraction with organic solvents, P. Vieira, M.M.R. De Melo, A. Şen, M. Simões, H. Pereira, I. Portugal, C.M. Silva


[P-BS30] Past and future research programme on biorefinery and bioproducts at the Navigator Company, P. Pinto, A. Gaspar, R. Rodrigues, C. Neto

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Poster session | Reaction and Separation Processes [P-RS]

[P-RS01] Removal of antimony from water by iron-coated cork granulates, A. Pintor, B. Vieira, R. Boaventura, C. Botelho

[P-RS02] Study of the effect of the compensating anion on the CO₂ sorption capacity of hydrotalcite-based sorbents, C. Rocha, M. Soria, L. Madeira


[P-RS05] Spinel type – carbon based nanocomposites for the magnetically assisted removal of Hg and As species from different aqueous matrices, R. Groot, D. Tavares, E. Pereira, T. Trindade, N. Hartog, C.B. Lopes


[P-RS08] New extension of the Liu-Silva-Macedo model to multicomponent Lennard-Jones intradiffusivities, B. Zêzere, I. Portugal, C.M. Silva

[P-RS09] Experimental and modeled diffusivities of metal acetylacetonates in liquid ethanol, and comparative insights with their diffusivity in supercritical CO₂, B. Zêzere, I. Portugal, C.M. Silva

[P-RS10] A new test to measure the degree of deionization required for tartaric stabilization of wines by electrodialysis, P. Henriques, V. Geraldes, A.M.B. Alves


[P-RS13] Effect of dispersant on the stabilization of calcium carbonate nanoparticles, C. Almeida, Y. Manrique, J. Lopes, M. Dias

[P-RS14] Extraction and recovery of valuable metals from São Domingos acid mine drainage water, H. Passos, B. Cruz, N. Schaeffer, C. Patinha, E.F. da Silva, J.A.P. Coutinho


[P-RS16] Computational simulation of the aromatic extraction process - evaluation of thermodynamics and Sulfolan selectivity, Í. Araújo, C. Lira, A. Stragevitch

Developing an Entropic Performance Index, P. Góes, D. Rosa, J. Manzi

Activation of persulfate and peroxymonosulfate by heterogeneous catalysis for the degradation of organic pollutants, M. Árellano, M.Á. Sanromán, M. Pazos

Carotenoids fractionating from *Astrocaryum vulgare* Mart. (Tucumã) oil by crystallization, M.F.S. Mota, M.J.A. Ferreira, M.F. de Souza, E.P.S. Bon, S.P. Freitas


Methylcycloalkane/benzene separations by extractive distillation with ionic liquids, P. Navarro, M. Ayuso, A.M. Palma, M. Larriba, N.D.-Mellado, J. García, F. Rodríguez, J.A.P. Coutinho, P.J. Carvalho


Separation of cyclohexene from cyclohexane by liquid-liquid extraction with ionic liquids, M. Ayuso, N.D.-Mellado, A.O.-Pérez, P. Navarro, M. Larriba, J. García, F. Rodríguez

Impact of water on the CO$_2$ solubility in [C4C1im][Ac], P. Navarro, P.J. Carvalho, J.A.P. Coutinho

Simulation and optimization of the ethanol dehydration process by extractive distillation using imidazolium-based ionic liquids as solvents, C.J. Cavalcanti, L. Stragevitch, F. Carvalho, F. Pimentel


Production and characterization of biodiesel obtained by transesterification catalysed by ionic liquids based on imidazolium, A. Bau, G. Gonçalves, A. Queiroz, A. Ribeiro, P. Brito

Esterification process catalyzed by ionic liquids for fatty acid methyl esters production, C. Meireles

Biodiesel production through transesterification applying ionic liquids as catalysts, H. Goes, L. Lima, A. Queiroz, A. Ribeiro, P. Brito

[P-RS32] REEs recovery from leach solutions of fluorescent lamp wastes using supported liquid membranes, S. Pavon, A. Fortuny, M.T. Coll, A.M. Sastre

[P-RS33] Sludge free solar photo-Fenton combined with biofiltration for the degradation of phenolic compounds from olive mill wastewaters, E. Domingues, J. Gomes, M. Gmurek, M. Quina, R. Martins, R.Q.-Ferreira

[P-RS34] Ionic liquids as solvent for the extraction of phenols from effluents of biomass fast pyrolysis, E.J. González, I. Díaz, M. Rodríguez, M.G.-Miquel, M.H.-Caricol


[P-RS36] Lagrangian Mixing Simulation and Quantification of Scales, J. Matos,; M. Brito, M. Dias, J.C. Lopes, R. Santos


[P-RS38] Modulating behavior of Ionic Liquid on Micellization behavior in Aqueous Surfactant, I. Khan, M.A. Usmani, J.A.P. Coutinho

[P-RS39] Rigorous Modelling of the NO$_x$ Absorption Process: Steady state sensitivity and validation of the dynamic behavior, I. Vilarinho, N. Oliveira, B. Duarte, S. Pereira

[P-RS40] Sequential extraction of phenolic compounds from Libidibia ferrea fruits using pressurized fluids, J.R.S. Botelho, R.N. de Carvalho Júnior, H.C. de Sousa, M.E.M. Braga

[P-RS41] Solketal, a fuel additive produced from the valorization of glycerol, J. Martinho, J. Puna, M.T. Santos


[P-RS44] Study of triterpenic acids isolation by simulated moving bed at two distinct scales, J. Aniceto, I. Azenha, A. Mendes, C.M. Silva

[P-RS45] Molecularly Imprinted Polymers for the chromatographic separation of triterpenic acids isomers, J. Aniceto, A. Rudnitskaya, C.M. Silva


[P-RS51] Synthesis and characterisation of aluminosilicate ZSM-5 membranes, S. Costa, S.P. Cardoso, Z. Lin, C.M. Silva


Poster session | Energy and Environment [P-EE]

[P-EE01] Multi-electrode window for large-area solar hydrogen production, A. Vilanova, T. Lopes, A. Mendes
Investigation of the viability of converting a leachate from a mechanical biological treatment plant for municipal solid waste into fertilizers, J. Cardoso, B. Rodrigues, P. Brito, H. Gomes


Optimization of soybean oil ethanolysis by response surface methodology, M.S. Ramos, M. Catarino, A.P.S. Dias, J. Puna

Preliminary analysis of ashes from different agricultural and forestry biomass residues, D. Marques, D. Direito, M. Reinhardt, R.M. Pilão, A.M. Ribeiro

Thermochemical behaviour of wet blue shavings in an inert atmosphere, D. Direito, A.F. Almeida, R.M. Pilão, A.M. Ribeiro

Influence of the synthesis conditions on the selectivity of CuZn catalysts towards CO$_2$ electrochemical reduction (ERCO2), C. Azenha, C.M.-Pedrero, A. Mendes

Development of a simple and inexpensive methodology for the determination of estrone and 17α-ethinylestradiol in sludge samples, V. Louros, D. Lima, J. Leitão, V. Esteves, H. Nadais

Removal of estrone and 17α-ethinylestradiol by digested sludge under different conditions using batch experiments, V. Louros, A. Sousa, D. Lima, J. Leitão, V. Esteves, H. Nadais

Solid-liquid extraction for the determination of volatile methylsiloxanes (VMSs) in sewage sludge samples, J. Silva, F. Bernardo, N. Ratola, A. Alves, V. Homem


Hermetic encapsulation of hole transport-free perovskite solar cell, S. Enami, D. Ivanou, A. Mendes

Electrochemical characterization of commercial activated carbons, N. Nunes, R.E.-Leitão, A. Martins

Preparation of carbon-based electrodes to be used as back-contact in perovskite solar cells, A.C. Teixeira, L. Andrade, A. Mendes


[PP-E18] Synthesis of high surface area host-guest hematite photoelectrodes for photoelectrochemical cells, F. Francisco


[PP-E22] Numerical Simulation of the Membrane Chemical Degradation in a PEM fuel cell, R. Ferreira, D. Falcão, A. Pinto


[PP-E24] Boosting the efficiency of large area dye sensitized solar cells, D. Ivanou, J. Capitão, J. Maçaira, A.I. Pereira, A. Mendes


[PP-E26] Impact of environmental conditions in perovskite solar cells: temperature, oxygen and moisture, I. Mesquita, L. Andrade, A. Mendes

[PP-E27] Degradation of benzodiazepines and carbamazepine by electrochemical oxidation using boron doped diamond electrode and effects on neuronal toxicity, B. Souza, M. Bosio,; M. Dezotti, J. Bassin, E.Q.-Ferreira, R.Q.-Ferreira, E. Saggioro

[PP-E28] Drying sewage sludge with coal fly ash for producing a soil amendment, L.A. Gomes, R.J.A. Lopes, J.C.M. Góis, M.M.J. Quina
[P-EE29]  
**Biodiesel production using nanocatalyst from calcium waste materials**, S. Santos, L. Nobre, J. Puna, J. Gomes, R.Q.-Ferreira, J. Bordado

[P-EE30]  
**Preliminary tests on the use of additives to decrease fine particles emission in biomass combustion**, J. Condeço, S. Hariharakrishnan, N. Canha, S. Pereira, M. Costa, J. Bordado, J. Correia

[P-EE31]  
**Co-combustion of residual forest biomass derived from eucalyptus with sludge from wastewater treatment in the pulp and paper industry: NO and chlorine emissions**, D. Pio, L. Tarelho, T. Nunes, M. Matos

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[P-EE33]  
**Photocatalytic reduction of bromate in fresh waters using a static mixer as photocatalyst support**, D. Morais, F. Moreira, R. Boaventura, V. Vilar

[P-EE34]  
**The effect of Ni-Ru supported catalyst in the sodium borohydride catalytic hydrolysis for hydrogen generation**, H.X. Nunes, C. Rangel, A. Pinto

[P-EE35]  
**Assignment of hazardous characteristics to wastes: HP14 ecotoxicity**, B. Bandarra, L. Gomes, J. Pereira, F. Gonçalves, R. Martins, M. Quina

[P-EE36]  
**Thermochemical characterization of tars Produced in the context of biomass gasification**, D. Santos

[P-EE37]  
**Performance of a passive and semi-passive Direct Alcohol Fuel Cell**, C.S. Moreira, V.B. Oliveira, A.M.F.R. Pinto

[P-EE38]  
**Gasohol direct production for energy-efficient bioethanol downstream processing**, Â.D. Nunes, J. Granjo, B.P. Duarte, N.M. Oliveira

[P-EE39]  
**Improved sorbents for Calcium looping CO₂ capture in the cement industry: increasing sintering resistance using waste resources and steam**, P. Teixeira, I. Mohamed, C.I.C. Pinheiro, A. Fernandes, M.F. Ribeiro

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[P-EE41]  
Comparative studies between homogeneous and heterogeneous Fenton’s process – low-cost materials experimentation and alternatives to the classic process, A. Rossi, R. Martins, R.Q.-Ferreira

Life cycle assessment of a vanadium flow battery, J. Gouveia, A. Monteiro, A. Mendes, T. Mata, N. Caetano, A. Martins

Nitrogen and COD removal enhancement in a SBR: influence of using step-feed and indirect parameters monitoring, in a real-time control perspective, I. Inocêncio


Energy optimization of sludge anaerobic digestion, M.T. Santos, F. Alves

Study of Hg$^{2+}$ removal from tap water using different biosorbents, E. Fabre, C. Vale, E. Pereira, C.M. Silva

Design of experiments and response surface methodology as powerful tools for optimization of adsorption heat pumps, J. Pinheiro, S. Salástio, A. Valente, C.M. Silva

Copper foam coated with CPO-27(Ni) metal-organic framework for adsorption heat pump: simulation study using OpenFOAM, J. Pinheiro, S. Salástio, V. Geraldes, A. Valente, C.M. Silva

Influence of distinct cations in solution on the equilibrium and kinetics of mercury removal using titanosilicate ETS-4, S.P. Cardoso, T. Faria, C.B. Lopes, E. Pereira, I. Portugal, C.M. Silva

Green and sustainable strategy to produce plastic antibodies for highly-specific pharma separation processes, R. Viveiros, T. Casimiro

Design of RAFT synthesized amphiphilic and stimuli-responsive block copolymers for encapsulation of polyphenols in polymersomes, C. Gomes, R. Dias, M.R. Costa
[P-IM03]
**Adsorbent based on ZIF-8 for chiral separation in liquid chromatography**, C. Santana, T. Menezes, S. Egues, J. de Conto

[P-IM04]
**Sequential photocatalysis-electro-Fenton process mediated with magnetic Fe-TiO$_2$ beads for the treatment of polluted effluents**, A.M.D. Sarabia, M. Pazos, M.Á. Sanromán, S. Rezgui, L. Monser, N. Adhoum

[P-IM05]

[P-IM06]

[P-IM07]
**Functional bio-based polyurethane foams from industrial residues**, N. Gama, A. Ferreira, A. Barros

[P-IM08]
**Incorporation of IL@ZIF-8 composites into Matrimid® 5218 to produce Mixed-Matrix Membranes for Gas Separation**, T. Ferreira, B. de Moura, L. Neves, J. Esperança, I. Esteves

[P-IM09]
**Chemical-physical study of ibuprofen incorporated into unmodified and modified mesoporous silicas: from matrix synthesis to drug release**, S. Inocêncio, I. Matos, F. Danède, A. Santos, J. Sotomayor, I. Fonseca, N. Correia, M. Dionísio, M. Corvo, T. Cordeiro

[P-IM10]
**Crosslinked starch/chitosan microparticles as reinforcement of thermoplastic corn starch**, D. Paiva, J. Martins, L. Carvalho, F.D. Magalhães

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[P-IM15]
[P-IM16] Silica aerogel reinforcement with different types of cellulose fibres, A. Portugal, A. Romeiro, L. Durães

[P-IM17] Selective recovery of platinum-group elements using Fe3O4@EG nanocomposites and their precursors, F. Rocha, E. Pereira, T. Trindade, C.M. Silva, C.B. Lopes

[P-IM18] A New Molybdenum Trioxide Hybrid Decorated by 3-(1,2,4-Triazol-4-yl)adamantane-1-carboxylic acid: a Promising Reaction-Induced Self-Separating Catalyst for Epoxidation, P. Neves, A. Lysenko, G. Senchyk, K. Domasevitch, H. Krautscheid, A. Valente, I. Gonçalves


[P-IM21] Use of ABES to evaluate the impact of chitosan solution on the cure of starch based resins, M.L. Almeida, J. M. Martins, C. Coelho, F.M. Magalhães, L.H. Carvalho

[P-IM22] BioFPro a web based software for correlation and prediction of biofuels properties, A. Ferreira, N. Prieto, J. Granjo


[P-IM26] Enantioselective separation of racemic mandelic acid using aqueous biphasic systems with chiral ionic liquids, M. Kholany, F. Silva, T. Sintra, S. Ventura, J.A.P. Coutinho


[P-IM29] Predicting paint composition from middle infrared spectra (FTIR), M.J. Fernandes, F. Oliveira, J. Peres, F. Martins, M.M.S.M Bastos
Covalent Organic Frameworks as support for Ni nanocatalysts for \( \text{CO}_2 \) methanation, L. Gonçalves, J. Sousa, S. Soares, Y. Kolenko, F. Pereira

Development of new lead-free medical X-ray protective clothing, P. Ramalho, S. Soares, T. Pinto, A. Gonçalves, A. Barros, G. Santos, J. Morgado, C. Freire, C. Pereira, F. Pereira


Valorization of wastes from pulp and paper industry: effect of distinct formulations and stabilization conditions in the properties of granules to be used as soil improvers, N. Cruz, F. Silva, L. Tarelho, S. Rodrigues

Recovery of rare earths from natural waters using carbon-based nanomaterials, C. Cardoso, E. Pereira

Microencapsulation by spray coagulation method: study of the alginate crosslinking by different calcium salts, D. Cuma, I.P. Fernandes, M.F. Barreiro

Emulsions preparation based on ternary phase diagrams: comparative study using two oils (Miglyol and Sweet Almond) with two distinct surfactants (Tween 80 and Saponin), T. Schreiner, M. Dias, S. Pinho, M.F. Barreiro

The effect of treating the carbon supports on the copper electrocatalytic activity towards the electroreduction of \( \text{CO}_2 \), N. Pereira, C.M.-Pedrero, A. Mendes

From Kinetics to Equilibrium Control in \( \text{CO}_2 \) capture columns using Encapsulated Ionic Liquids (ENILs), C. Moya, R. Santiago, J. Lemus, D. Moreno, J. Palomar

Poster session | Modeling, Synthesis and Integration of Chemical Processes [P-MP]

[P-MP01]
$^1$H NMR spectroscopy combined with partial least squares regression for predicting gasoline composition, A.L. Leal, J.C. Ribeiro, A.M.S. Silva, F.G. Martins

[P-MP02]
Modeling clathrate hydrate formation/inhibition using a modified CPA EoS, A. Palma, A. Queimada, J.A.P. Coutinho [P-MP02]

[P-MP03]
Heat exchanger network retrofit of an aromatics plant process unit using a hybrid methodology, V.E. Araujo, F.P. Bernardo, C.M. Reis, F.G. Martins

[P-MP04]
Advanced multi-granularity analytics for industry 4.0, M.S. dos Reis, T. Rato

[P-MP05]
Structured multiblock approaches for high-dimensional predictive modeling, M.S. dos Reis

[P-MP06]
Gas hydrates as a potential solution as carbon capture and storage technology, M.F. Costa, C.M. Teixeira, K.J. Santos, M.M. Dias, J.C.B. Lopes

[P-MP07]
Polymeric catalytic membranes for biodiesel production – Effect of the addition of k-carrageenan in PVA membranes, R. Risso, M. Ventura, C. Duarte, I. Fonseca, J. Vital

[P-MP08]
(Nitro)Phenols reactivity in mixed acid benzene nitration, D. Afonso, A. Ribeiro, P. Araujo, J. Vital, L.M. Madeira

[P-MP09]
Simulation, monitoring and diagnosis of faults and equipment degradation in chemical processes, J. Sansana, M. Reis

[P-MP10]
Image-based process monitoring using multiscale and multivariate image analysis: A pilot scale implementation study and results, E. Strelet, M. Reis

[P-MP11]
A coarse-grain computer simulation approach of triblock copolymers, G. Pe-Sanchez, F.A. Vicente, N. Schaeffer, S.P.M. Ventura, J.A.P. Coutinho

[P-MP12]

[P-MP13]
A simple laboratory approach for the determination and characterization of ternary phase diagrams for Chemical Engineering undergraduate students, E.V. Capela, J.H.P.M. Santos, I.B.-Palheiros, J.A.P. Coutinho, S.P.M. Ventura, M.G. Freire

Promoting an active learning in subjects of the Chemical Engineering degree, E.J. González, I. Díaz, M. Rodríguez, M.G.-Miquel

Exploring the non-ideal behavior of coiled and straight tubular reactors, N.V. Gama, F.A. da Silva, I. Portugal

Pushing the dynamics and the outputs of laboratory courses, A. B.-Timmons, F.A. da Silva

Contribution to Innovation in Chemical Engineering Education Using Online Resources, A. Cardoso, M.G. Rasteiro