

RIA 43

XLIII Reunião Ibérica de Adsorção

Porto, Portugal

1-4 September, 2024

SCIENTIFIC PROGRAM



Welcome

In September 2022, it was decided that the XLIII Iberian Adsorption Meeting would return to the city of Porto after 20 years, since editions X in 1985 and XXIX in 2004. We are extremely proud of this choice, which confers upon us a great responsibility: to gather the entire community dedicated to the study of adsorption in the Iberian Peninsula and the Ibero-American region.

This challenge motivates us to dedicate additional effort to make the 43rd Iberian Adsorption Meeting a memorable event and an encouraging environment for the exchange of scientific knowledge and the promotion of collaborations within our community.

The event will take place at the Dr. António Cupertino de Miranda Foundation, from September 1st to 4th, 2024.

SPONSORS

Institutional Support



Gold



SILVER



Bronze



Coffee Break Sponsor



*This event was financially supported by national funds through FCT/MCTES (PIDDAC) reference ALiCE, LA/P/0045/2020 (DOI: 10.54499/LA/P/0045/2020)

COMMITTEES

Organizing Committee

- Alexandre Ferreira, LSRE-LCM | FEUP
- Ana Mafalda Ribeiro, LSRE-LCM | FEUP
- Rui Ribeiro, HyLab
- Manuel Fernando Pereira, LSRE-LCM | FEUP
- Paulo Carmo, LSRE-LCM | FEUP
- Albertina Rios, LSRE-LCM | FEUP
- Diogo Rodrigues, LSRE-LCM | FEUP

Local Committee

- Rute Seabra, LSRE-LCM | FEUP
- Isabella Corrêa, LSRE-LCM | FEUP
- Rafael Dias, LSRE-LCM | FEUP
- Ana Pereira, LSRE-LCM | FEUP
- Cristiana Gomes, LSRE-LCM | FEUP
- Bruno Castro, LSRE-LCM | FEUP
- Mariana Bessa, LSRE-LCM | FEUP
- Inês Rodrigues, LSRE-LCM | FEUP
- Beatriz Silva, LSRE-LCM | FEUP
- Luana Queiroz, LSRE-LCM | FEUP
- Guilherme Amaral, LSRE-LCM | FEUP
- Rui Matias, LSRE-LCM | FEUP

Scientific Committee

- Fernando Rey Garcia (ITQ CSIC, Valencia, Spain)
- Conchi Ania (CNRS Orleans, France)
- Ana Arenillas (INCAR CSIC, Oviedo, Spain)
- Diana Azevedo (UFC, Brasil)
- Sofia Calero (Tech. Univ. Eindhoven, The Netherlands)
- Francisco Carrasco (Univ. Granada, Spain)
- Ana Paula Carvalho (Univ. Lisboa, Portugal)
- Eduardo Cuerda Correa (Univ. Extremadura, Spain)
- Rubén García Menéndez (Univ. Oviedo, Spain)
- Julián Garrido (Univ. Pública Navarra, Spain)
- Carlos Grande (KAUST, Saudi Arabia)
- Ana Sofia Mestre (Univ. Lisboa, Portugal)
- Marta Gonzalez Plaza (INCAR CSIC, Oviedo, Spain)
- Manuel Pérez Mendoza (Univ. Granada, Spain)
- João Pires (Univ. Lisboa, Portugal)
- Manuela Ribeiro Carrott (Univ. Évora, Portugal)
- Alírio Rodrigues (Univ. Porto, Portugal)
- Enrique Rodríguez Castellón (Univ. Málaga, Spain)
- Moisés Pinto (Univ. Lisboa, Portugal)
- Karim Sapag (Univ. Nacional de San Luis, Argentina)
- Joaquin Silvestre (Univ. Alicante, Spain)

Scientific Committee

- Teresa Valdés-Solis (INCAR CSIC, Oviedo, Spain)
- Moisés Bastos Neto (UFC, Brasil)
- Elisa Barea (Univ. Granada, Spain)
- Amaya Arencibia Villagrà (Univ. Rey Juan Carlos, Madrid, Spain)

General Information

Venue

Conference:

Fundação Dr. António Cupertino de Miranda, Avenida da Boavista, 4245, 4100-140 Porto

Opening Ceremony & Welcome Cocktail:

Fundação Dr. António Cupertino de Miranda, Avenida da Boavista, 4245, 4100-140 Porto

Gala Dinner:

Ateneu Comercial do Porto, Rua Passos Manuel, 44, 4000-381 Porto

Website:

<https://ria43.events.chemistry.pt/en>

Contact:

ria43@chemistry.pt

Program Overview

	Sunday, 1	Monday, 2	Tuesday, 3	Wednesday, 4
8:30 - 9:00		Registration	Registration	Registration
9:00 - 10:00		Plenary Lecture - PL2	Plenary Lecture - PL3	Plenary Lecture - PL4
10:00 - 11:00		Oral communications I	Oral communications IV	Oral communications VII
11:00 - 11:30		Coffee Break	Coffee Break	Coffee Break
11:30 - 12:00		Oral communications II	Oral communications V	Keynote Lecture - KN5
12:00 - 13:00				Oral communications VIII
13:00 - 13:30		Lunch	Lunch	Closing Invited Lecture & Closing Ceremony
13:30 - 14:30				
14:30 - 15:00		Keynote Lecture - KN1	Keynote Lecture - KN3	
15:00 - 16:15	Registration	Oral communications III	Oral communications VI	
16:15 - 16:45			Best Thesis prize	
16:45 - 17:15		Keynote Lecture - KN2	Keynote Lecture - KN4	
17:15 - 17:45		Coffee Break &	Coffee Break &	
17:45 - 18:00		Poster Session I	Poster Session II	
18:00 - 18:15	Opening Cerimony & Plenary Lecture - PL1	SEAd - General Assembly	RSEQ Specialized Adsorption Group General Assembly	
18:00 - 18:30				
18:30 - 19:15				
19:30	Welcome cocktail			
20:30			Conference Dinner	

Plenary Lectures

PL1. Opening Session. Alírio Rodrigues | FEUP, Porto

“25 Abril 1974 - 50 years. The democratization of higher education and scientific research in Portugal - My adsorption journey”

PL2. José Paulo Mota | FCT/UNL, Lisboa

“Continuous Chromatographic Downstream Processing of Biopharmaceuticals”

PL3. Mercedes Maroto-Valer | Heriot-Watt University, Scotland

“Paving the way for sustainable industrial futures”

PL4. Susana Valencia | ITQ / CSIC, Valencia

“Revealing the Potential of Zeolites: Enhancing Solutions for Separation Processes”

Keynotes

KN1. Azahara Luna Triguero | TU/e, The Netherlands

“Thermochemical Energy Storage of Traditional and Blended Refrigerants in Porous Materials”

KN2. Youssef Belmabkhout | ACER CoE, Morocco

“Quest of porous materials via the valorization of organic and inorganic Wastes”

KN3. José Antonio Delgado Dobladez | Universidad Complutense de Madrid, Madrid

“Hybrid Membrane-PSA Systems for Hydrogen Recovery from Ammonia Cracking and CO₂ Capture from Flue Gas”

KN4. Mirjana Minceva | Technical University of Munich, Germany

“New possibilities with liquid stationary phases”

KN5. Carlos Grande | KAUST, Saudi Arabia

“The role of adsorption in the production of bio-methane”

Closing Session. José Luís Figueiredo | FEUP, Porto

“RIA@Porto: 20 years later”

Sunday, 1st September

15:00 Registration

18:00 Opening Ceremony

18:15 Plenary Lecture PL1 - **Alírio Rodrigues** | Faculdade de Engenharia - Universidade do Porto, Portugal

25 Abril 1974 - 50 years. The democratization of higher education and scientific research in Portugal - My adsorption journey

19:30 Welcome Cocktail

Monday, 2nd September

8:30 – 9:00 Registration

9:00 – 10:00 Plenary Lecture PL2 - **José Paulo Mota** | FCT/UNL, Lisboa

Continuous Chromatographic Downstream Processing of Biopharmaceuticals

10:00 – 11:00 Oral communications I

10:00 – 10:15 – O1

Post-combustion CO₂ Capture using Ion-exchanged binder-free NaY beads.

E. Aly, L. F. A. S. Zafanelli, A. Henrique, K. Gleichmann, A. E. Rodrigues, **F. A. D. S. Freitas**, J. A. C. Silva | University of Aveiro, Portugal

10:15 – 10:30 – O2

Rational Doping Strategy of Porous Materials for Hydrogen Storage: CNTs study case

Shima Rezaie, Azahara Luna-Triguero | Eindhoven University of Technology,
The Netherlands

10:30 – 10:45 – O3

Simulated Moving Bed Reactor to Valorise Glycerol into Solketal: Coupling
Green Chemicals and Process Intensification

Isabella Corrêa, Rui P. V. Faria, Alírio E. Rodrigues | Faculdade de Engenharia -
Universidade do Porto, Portugal

10:45 – 11:00 – O4

Efficient Hybrid Modeling and Sorption Model Discovery for Non-Linear
Advection-Diffusion-Sorption Systems: A Systematic Scientific Machine
Learning Approach

Vinicius Santana, Christopher Rackauckas, Ana Mafalda Ribeiro, Idelfonso
Nogueira | Norwegian University of Science and Technology, Norway

11:00 – 11:30 Coffee Break

11:30 – 13:00 Oral Communications II

11:30 – 11h45 - O5

Improving conventional drinking water treatment: can biomass-derived PACs
get the job done?

Marta A. Andrade, Elsa Mesquita, Rui M.C. Viegas, Ana P. Carvalho, Maria J.
Rosa, Ana S. Mestre | Faculdade de Ciências - Universidade de Lisboa, Portugal

11:45 – 12:00 – O6

Carbon capture from wet flue gas in a dual-site dynamic Metal-Organic
Framework

Emilio Borrego Marín, Carmen Montoro, Valentina Colombo, Elisa Barea, Luisa
Marleny Rodríguez Albelo, Jorge Andrés Rodríguez Navarro | University of
Granada, Spain

12:00 – 12:15 – **O7**

Development of materials for potential use in water harvesting.

Ana Pereira, Milana Barata, Alexandre Ferreira, Alírio Rodrigues, Ana Mafalda Ribeiro, Maria João Regufe | Faculdade de Engenharia - Universidade do Porto, Portugal

12:15 – 12:30 – **O8**

Structural Changes in ZIFs upon Liquid-Phase Adsorption

Judit Farrando Pérez, Alexander Missyul, Joaquín Silvestre Alberó | Universidad de Alicante, Spain

12:30 – 12:45 – **O9**

New activated carbons produced from pine nut shells – their potential for drinking water treatment

Elsa Mesquita | LNEC - National Laboratory for Civil Engineering, Portugal

12:45 – 13:00 – **O10**

Analysing the role of nanopore confinement on the regeneration of exhausted carbons

Florian Olivier, Sebastien Schaefer, Isabelle Laidin, Benoit Cagnon, **Conchi Ania** | CNRS (CEMHTI), France

13:00 – 14:30 Lunch

14:30 – 15:00 Keynote Lecture KN1 - **Azahara Luna Triguero** | TU/e, The Netherlands

Thermochemical Energy Storage of Traditional and Blended Refrigerants in Porous Materials

15:00 – 16:45 – Oral communications III

15:00 – 15:15 – **O11**

Physical Characterization of Porous Carbons for Gas Storage and Separation Applications

Nathalia Prieto, Katie Struckhoff | Anton Paar QuantaTec

15:15 – 15:30 – **O12**

Revealing the potential of poly(heptazine imides)-based adsorbents for CO₂ capture

Pedro Ouro, Marina Ilkaeva, Igor Krivtsov, Mariana Sardo, Luís Mafra | University of Aveiro & University of Oviedo, Portugal / Spain

15:30 – 15:45 – **O13**

Adsorption of carbon dioxide, water and hydrogen in lithium-alkoxide functionalized Cu-BTC metal-organic frameworks

Koen Wortelboer, Vlado Menkovski, José Manuel Vicent-Luna, Sofia Calero | Eindhoven University of Technology, The Netherlands

15:45 – 16:00 – **O14**

Structural modifications of pure silica MEL zeolite studied by in-situ X-Ray diffraction during adsorption of propane

Alberto Barros, Silvia Marti, Miguel Palomino, Susana Valencia, **Fernando Rey** | Instituto de Tecnologia Quimica, Spain

16:00 – 16:15 – **O15**

Ferromagnetic metal organic framework (MOF)/alginate hybrid beads for induction heating enabled atmospheric water harvesting.

Ravi Sharma, Ghadi Saab, Matthias Schoukens, Tom R.C. Van Assche, Joeri F.M. Denayer | VUB, Belgium

16:15 – 16:30 – **O16**

Scaling-up PILC production for CO₂ capture applications

Abeer Al Mohtar, Margarida Maria Gonçalves Jesus, Tânia Frade, Moisés Pinto
| Instituto Superior Técnico, Portugal

16:30 – 16:45 – **O17**

Exploring metal biosorption onto non-living algae: truth and myths

Helena Passos, Ana R. F. Carreira, João A.P. Coutinho | Faculdade de Engenharia - Universidade do Porto, Portugal

16:45 – 17:15 Keynote Lecture KN2 - **Youssef Belmabkhout** | ACER CoE, Morocco

Quest of porous materials via the valorization of organic and inorganic Wastes

17:15 – 18:15 Coffee Break & Poster Session I

17:45 – 18:30 SEAd - General Assembly

Tuesday, 3rd September

8:30 – 9:00 Registration

9:00 – 10:00 Plenary Lecture PL3 - **Mercedes Maroto-Valer** | Heriot-Watt University, Edinburgh, Scotland

Paving the way for sustainable industrial futures

10:00 – 11:00 Oral communications IV

10:00 – 10:15 – O18

Electrified Temperature Vacuum Swing Adsorption post combustion carbon capture, a cyclic simulation study.

Mohsen Gholami, Matthias Schoukens, Tom Van Assche, Joeri Denayer | Vrije Universiteit Brussel, Belgium

10:15 – 10:30 – O19

CO₂ Capture from Flue Gas – Modelling of the Cyclic Sorption/Desorption on a K-promoted Hydrotalcite

Joana Martins, Rute Seabra, Alexandre Ferreira, Ana Mafalda Ribeiro, Alírio Rodrigues, Madeira, L. M. | Faculdade de Engenharia - Universidade do Porto, Portugal

10:30 – 10:45 – O20

Synthetic and sustainable carbon materials as competitive electrocatalysts for oxygen reduction reactions

Elisa Martínez Díaz, Natalia Rey Raap | Instituto de Ciencia y Tecnología del Carbono (INCAR-CSIC), Spain

10:45 – 11:00 – O21

Enhancing the sustainability of activated carbon materials application in water treatment

Ana S. Mestre, Daniela Perpétua, Filipe M. Leandro, Isabell Ober, Marta A. Andrade, Elsa Mesquita, Rui M. C. Viegas, Maria João Rosa, Ana P. Carvalho | Faculdade de Ciências - Universidade de Lisboa, Portugal

11:00 – 11:30 Coffee Break

11:30 – 13:00 Oral Communications V

11:30 – 11:45 – O22

Influence of humidity on CO₂ solid sorbent performance: insight and challenges

Connor Hewson, Sean McIntyre, Lisa Mingzhe Sun, Dan Burnett, Daryl Williams, **Paul Lacom**i | Surface Measurement Systems

11:45 – 12:00 – O23

Adsorption process of a multi-metal leaching liquor from the waste of integrated circuits for gold purification using ion-exchange technology

Márcia A-D Silva, Liliana M Martelo, Margarida M.S.M. Bastos, Helena M.V.M. Soares | Faculdade de Engenharia - Universidade do Porto, Portugal

12:00 – 12:15 – O24

H₂ purification by PSA using Norit R2030 as the adsorbent and IAST model to predict the multicomponent adsorption equilibrium

Mariana Bessa, Alexandre Ferreira, Alírio Rodrigues, Ana Mafalda Ribeiro | Faculdade de Engenharia - Universidade do Porto, Portugal

12:15 – 12:30 – O25

Simulating the separation of flue gas components in TAMOF-1

Susanne Gooijer, José Manuel Vicent-Luna, Stefano Giancola, David Dubbeldam, Santiago Capelo-Avilés, Jose Ramon Galán-Mascaros, Sofia Calero | Eindhoven University of Technology, The Netherlands

12:30 – 12:45 – O26

In silico study of the interactions of maqui anthocyanin extracts with biological receptors. Implications in Crohn's disease and colon cancer

P.J. Merklng, I. García Esteban, M. de Miguel, A.P. Zaderenko | Universidad Pablo de Olavide, Spain

12:45 – 13:00 – **O27**

One MOF to find them ALL, one MOF to separate them and enrich methane streams

Eduardo Andrés-García, Guillermo Mínguez Espallargas | ICMol (UV), Spain

13:00 – 14:30 Lunch

14:30 – 15:00 Keynote Lecture KN3 - **José Antonio Delgado Dobladez** | Universidad Complutense de Madrid, Madrid

Hybrid Membrane-PSA Systems for Hydrogen Recovery from Ammonia Cracking and CO₂ Capture from Flue Gas

15:00 – 16:15 Oral communications VI

15:00 – 15:15 – **O28**

Advancing Sustainability through Gas Adsorption and Reaction Technologies

Patrick S. Bárcia, M. Salomé Macedo | Sysadvance

15:15 – 15:30 – **O29**

Optimizing CO₂ capture in pressure swing adsorption units: A deep neural network approach with optimality evaluation and operating maps for decision-making

Carine Menezes Rebello, Idelfonso B.R. Nogueira | Norwegian University of Science and Technology, Norway

15:30 – 15:45 – **O30**

Exploring the development of hydrochars from wet olive cake biomass as adsorbents for pharmaceutical compounds

Esperanza Romero, Adriana Moral-Rodríguez, Celia Cifuentes Urien, Rogelio Nogales, Ana Sofía Mestre | Estación Experimental del Zaidín, Spain

15:45 – 16:00 – **O31**

Unravelling the water adsorption mechanism of a luminescent optical fibre sensor silica xerogel membrane

Guillermo Cruz-Quesada, Beatriz Rosales-Reina, Diego López-Torres, Santiago Reinoso, María Victoria López-Ramón, Gurutze Arzamendi, César Elosua, Maialen-Espinal Viguri, Julián J. Garrido | Public University of Navarre, Spain

16:00 – 16:15 – **O32**

Adsorption of small molecules on zeolite SSZ-45

Alberto Barros Pardo, Jose Valero Jiménez, Susana Valencia Valencia, Fernando Rey García | Instituto de Tecnología Química, Spain

16:15 – 16:45 Best Thesis prize

16:45 – 17:15 Keynote Lecture KN4 - **Mirjana Minceva** | Technical University of Munich, Germany

New possibilities with liquid stationary phases

17:15 – 18:15 Coffee Break & Poster Session II

17:45 – 18:30 RSEQ | Specialized Adsorption Group General Assembly

20:30 Conference Dinner

Wednesday, 4th September

8:30 – 9:00 Registration

9:00 – 10:00 Plenary Lecture PL4 - **Susana Valencia** | ITQ / CSIC, Valencia

Revealing the Potential of Zeolites: Enhancing Solutions for Separation Processes

10:00 – 11:00 Oral communications VII

10:00 – 10:15 – O33

Mercury adsorption from water using activated carbons developed from lignocellulosic biomass

Amaya Arencibia, Nerea Izquierdo, Gemaz Gómez-Pozuelo, María José López-Muñoz | Universidad Rey Juan Carlos, Spain

10:15 – 10:30 – O34

A glucose biosensor based on the adsorption of glucose oxidase onto graphitic carbon nitride

Rita A. M. Barros, Raquel O. Cristóvão, Cláudia G. Silva, Joaquim L. Faria | Faculdade de Engenharia - Universidade do Porto, Portugal

10:30 – 10:45 – O35

Batch Adsorption of Copper and Lead by an Agar-Graphene Oxide Hydrogel in a Single-Component System

Nickolly B. V. Serafim, C. M. B. Araujo, Jorge V. L. Cavalcanti, Alexandre F. P. Ferreira, M. A. M. Sobrinho | Faculdade de Engenharia - Universidade do Porto, Portugal

10:45 – 11:00 – O36

High-capacity zeolite laminates: enhancing gas separations beyond packed beds

M. H. B. Born, T. R. C. Van Assche, J. F. M. Denayer | Vrije Universiteit Brussel, Belgium

11:00 – 11:30 Coffee Break

11:30 – 12:00 Keynote Lecture KN5 - **Carlos Grande** | KAUST, Saudi Arabia

The role of adsorption in the production of bio-methane

12:00 – 13:00 Oral Communications VIII

12:00 – 12:15 – O37

Effect of Cations on the Ammonia Synthesis Reaction Under the Confinement in Zeolites

Botagoz Zhakishева, Sofía Calero, **Juan José Gutiérrez-Sevillano** | Universidad Pablo de Olavide, Spain

12:15 – 12:30 – O38

The Impact of Metal Centers in the Metal-Organic Frameworks on Carbon Dioxide Hydrogenation to Formic Acid

Dominika O. Wasik, José Manuel Vicent-Luna, Shima Rezaie, Azahara Luna-Triguero, David Dubbeldam, Thijs J. H. Vlugt, Sofia Calero | Eindhoven University of Technology, The Netherlands

12:30 – 12:45 – O39

Kinetic separation of green hydrogen from natural gas grids by using vacuum pressure swing adsorption

L. F. A. S. Zafanelli, Adriano Henrique, Ezzeldin Aly, Alírio Rodrigues, Georges Mouchaham, José A. C. Silva | Faculdade de Engenharia - Universidade do Porto, Portugal

12:45 – 13:00 – O40

From forest to filter: A holistic approach to pine bark's adsorption technology

Scientific Program

Ricardo M. Ferreira, Pedro Gonçalves, Mariko A. Carneiro, Olivia Salomé Soares, Ariana Pintor, Manuel Fernando Pereira, Cidália Botelho | Faculdade de Engenharia - Universidade do Porto, Portugal

13:00 – 13:30 Closing Invited Lecture & Closing Ceremony

P1 - A novel dual-function material for CO₂ capture and conversion via low-temperature sunlight-assisted methanation

L. Paulista, A. Ferreira, A. Rodrigues, R. Martins, R. Boaventura, V. Vilar, **T. Silva** | Faculdade de Engenharia - Universidade do Porto, Portugal

P2 - Biochar modificado com enxofre orgânico: um adsorvente verde eficaz para remover espécies metálicas em sistemas aquáticos

J. C. A. Macedo, P.S. Tonello, A. H. Rosa | Sao Paulo State University – UNESP, Brazil

P3 - Remoção de mercúrio de soluções aquosas a partir de bagaço de cana modificado com plasma

A.P. Santacruz-Salas, M. L. P. Antunes, E. C. Rangel, C. H. Watanabe, A. H. Rosa | Sao Paulo State University – UNESP, Brazil

P4 - Ionic dyes adsorption on bone char

S. Aguirre-Contreras, M.V. López-Ramón, I. Velo-Gala, M.A. Álvarez, R. Ocampo-Pérez | Universidad de Jaén, Spain

P5 - Extremum Seeking Control for Pressure Swing Adsorption Units

Beatriz C. Silva, Ana M. Ribeiro, Diogo Rodrigues, Alexandre F.P. Ferreira, Idelfonso B.R. Nogueira | Faculdade de Engenharia - Universidade do Porto, Portugal

P6 - Desenvolvimento de monolito Sílica/HKUST-1 para Captura de CO₂

Katilla C. Santos, Marília Rafaele Oliveira, Thauane Selva Lima da Silva, Tamires R. Menezes, Klebson S. Santos, Gustavo Rodrigues Borges, Claudio Dariva, Elton Franceschi, Sílvia Egues, **Juliana de Conto** | Instituto de Tecnologia e Pesquisa/UNIT, Brazil

P7 - Tailoring activated carbon supported on 3D alumina microspheres for micropollutant adsorption

André Torres-Pinto, Joana Dele, Ana María Chávez, Adrián M. T. Silva | Faculdade de Engenharia - Universidade do Porto, Portugal

P8 - The impacts of adsorption in the production and purification of green hydrogen

Dorin Miscenco, Maria J. Beira, Kostadin V. Petrov, Dominik Jammal, Cristina Cordas, **Rui Ribeiro** | HyLab, Portugal

P9 - Tannic acid-doxorubicin nanoparticles in cancer therapy

A.P. Zaderenko, O. Garzo-Sánchez, M. Llana Ruiz, S. Maisanaba, G. Repetto, P.J. Merklings | Universidad Pablo de Olavide, Spain

P10 - Adsorption-based separation of Dicyclohexylamine from aniline production streams

Dorin Miscenco, Nuno Manuel Clemente de Oliveira, Alírio Elígio Rodrigues, Dulce Cristina Martins da Silva | Universidade de Coimbra, Portugal

P11 - Bovine Serum Albumin and Myoglobin separation on HAP

Albertina G. Rios, Ana M. Ribeiro, Alírio E. Rodrigues, Alexandre F. P. Ferreira
| Faculdade de Engenharia - Universidade do Porto, Portugal

P12 - Synthesis of Graphene Oxide/Sodium Alginate and Cotton Fibers Composite Hydrogel via 3D Printing and Its Application as Chloroquine Adsorbent in Water

Nickolly B. V. Serafim, C. M. B. Araujo, Alexandre F. P. Ferreira, M. A. M. Sobrinho, Margarida S. C. A. de Brito, Yaidelin J. A. Manrique | Faculdade de Engenharia - Universidade do Porto, Portugal

P13 - Investigating the role of the metal on NO-adsorption in M-MOF-74

Susanne Gooijer, José Manuel Vicent-Luna, Azahara Luna-Triguero, David Dubbeldam, Sofia Calero | Eindhoven University of Technology, The Netherlands

P14 - Adsorption of Clonazepam using Biochar from Wood Waste: Kinetics, Equilibrium, and Thermodynamics

Nickolly B. V. Serafim, Jorge V. F. L. Cavalcanti, M. A. M. Sobrinho | Faculdade de Engenharia - Universidade do Porto, Portugal

P15 - Synthesis of activated carbons from sewage sludge and their application to biogas purification

Rubén Calero Berrocal, Gonzalo Pascual Muñoz, **V. Ismael Águeda Maté**, José Antonio Delgado Dobladez | Universidad Complutense de Madrid, Spain

P16 - Oxygen plasma-engineering of ZIF-67 nanomaterials

Manuel Perez-Mendoza, Victor K. Abdelkader-Fernandez, Rebeca Vismara, F. Javier López-Garzón, Jorge A, Rodríguez-Navarro | Universidad de Granada, Spain

P17 - Enhancing Light Olefin Recovery Using Eco-Friendly MIL-100(Fe) Adsorptive Processes

Paulo Carmo, Ana Mafalda Ribeiro, Alírio Rodrigues, Alexandre Ferreira | Faculdade de Engenharia - Universidade do Porto, Portugal

P18 - Competitive adsorption of vanillin, vanillic acid, and acetovanillone onto SP700 resin.

Albertina G. Rios, **Carina Costa**, Ana M. Ribeiro, Alírio E. Rodrigues, Alexandre F. P. Ferreira | Faculdade de Engenharia - Universidade do Porto, Portugal

P19 - Adsorción de contaminantes orgánicos en zeolitas de tipo faujasita. Efecto de la hidrofobicidad y de la naturaleza del contaminante.

Daniel De Baker, Juan Andrés González, Jesus Mengual, Antonio Eduardo Palomares, **Fernando Rey** | Instituto de Tecnología Química UPV-CSIC, Spain

P20 - Graphite oxide suspension for quinoline adsorption in aqueous medium.

G. F. Oliveira do Nascimento, **C. M. B. Araújo**, M. M. Menezes Bezerra Duarte, M. Alves da Motta Sobrinho | Universidade do Minho, Portugal

P21 - Gas-phase simulated moving bed for methane upgrading using pelletized maxsorb.

Rafael Dias, Maria João Regufe, Ana Andreia Pereira, Alexandre Ferreira, Alírio Rodrigues, Ana Mafalda Ribeiro | Faculdade de Engenharia - Universidade do Porto, Portugal

P22 - Cytochrome C adsorption using graphene oxide-based composite hydrogel.

C. M. B. Araújo, Albertina G. Rios, Marcos Gomes Ghislandi, Alexandre Ferreira, M. Alves da Motta Sobrinho, Alírio Rodrigues | Universidade do Minho, Portugal

P23 - Enhanced thermal management in HKUST-1 composites through the incorporation of graphite flakes during the monolith conforming step.

Judit Farrando, Joaquín Silvestre Albero | University of Alicante, Spain

P24 - Purification of sugarcane molasses via adsorption on carbon materials and its valorization to 5-hydroxymethylfurfural.

Katarzyna M. Eblagon, Marcia V. N. Barros, M, Fernando R. Pereira, J. L. Figueiredo | Faculdade de Engenharia - Universidade do Porto, Portugal

P25 - Xylene Adsorption on Barium-Potassium Exchanged Faujasite Zeolite

Bruno Castro, Alexandre Ferreira | Faculdade de Engenharia - Universidade do Porto, Portugal

P26 - Synthesis and Functionalization of Monolithic Adsorbents: Impregnation and Grafting for Optimal CO₂ Capture.

Amaya Arencibia, Eloy Santiago Sanz-Pérez, Ali Kasiri | Universidad Rey Juan Carlos, Spain

P27 - Production of Activated Carbons from Technical Lignin for Arsenic and Cadmium simultaneous adsorption.

Brener F. M. L. Gomes, Silvio V. Junior, Leandro V. A. Gurgel | UFOP, Brazil

P28 - Adsorção contínua de losartana em leito poroso utilizando nanotubos de carbono funcionalizados por rota verde.

Heloisa P. S. Costa, Meuris Silva, Melissa Vieira | Faculdade de Engenharia - Universidade do Porto, Portugal

P29 - Propane and Propylene separation with carbon dioxide at mild temperatures by gas-phase SMB in binderfree zeolite 13X.

Rute Seabra, Rafael Dias, Maria J. Regufe, Ana M. Ribeiro, Alexandre P. Ferreira, Alírio E. Rodrigues | Faculdade de Engenharia - Universidade do Porto, Portugal

P30 - Contributions of the caustic material to enhance the reactive adsorption ability for H₂S removal at ambient conditions.

Meriem Abid, **Joaquin Silvestre Albero** | University of Alicante, Spain

P31 - Synthesis and evaluation of laccase-modified biochar for the removal of anti-inflammatory drug diclofenac from aqueous systems.

H. F. Rocha, A. Almeida, M. Pereira, A. Peleja, G. Pereira, D.L.D. Lima, V. Calisto | Universidade de Aveiro, Portugal

P32 - Aging of chabazite on natural gas dehydration by TSA.

Pedro A. S. Moura, Enrique Vilarrasa Garcia, Moises B. Neto, Enrique Rodríguez-Castellón, Diana C. S. de Azevedo | Federal University of Ceará, Brazil

P33 - Simulated Moving Bed Cascade for the Separation of Dihydroxyacetone from Glycerol Catalytic Oxidation Products.

Pedro M. Walgode, Rui P. V. Faria, Alírio E. Rodrigues | Faculdade de Engenharia - Universidade do Porto, Portugal

P34 - Impact of moisture on CO₂ adsorption equilibrium on zeolite 13X.

Rafaelle G. Santiago, Enrique Vilarrasa Garcia, Antonio E. B. Torres, Diana C. S. de Azevedo, Célio L. Cavalcante Jr, Moises B. Neto | Federal University of Ceará, Brazil

P35 - Engineering Carbon Nanotubes for Water Remediation.

Coset Abreu Jaureguí, Antonio Sepúlveda Escribano, Joaquín Silvestre Albero | Universidad de Alicante, Spain

P36 - Separation of Branched Alkanes Feeds by a Synergistic Action of Zeolite 5A and Metal-Organic Framework MIL-160(Al).

Adriano Henrique, P. F. Brântuas, L. F. A. S. Zafanelli, E. Aly, A. E. Rodrigues, G. Maurin, C. Serre, J. A. C. Silva | Instituto Politécnico de Bragança, Portugal

P37 - Fluoroquinolone antibiotic -ciprofloxacin- removal by adsorption on a lab-synthesized carbon xerogel from several environmentally-relevant wastewater matrices.

A.B. Hernández-Abreu, S. Álvarez-Torrellas, V.I. Águeda, J.A. Delgado, J. Garcia | Universidad Complutense de Madrid, Spain

P38 - Magnesium-modified cork biochars for the removal of phosphate from water.

Ariana M.A. Pintor, Nuno F. R. Sousa, O. Salomé G.P. Soares, M. Fernando R. Pereira, Cidália M.S. Botelho | Faculdade de Engenharia - Universidade do Porto, Portugal

P39 - Adaptive Digital Twin for Pressure Swing Adsorption Systems: Integrating a Novel Feedback Tracking System, Online Learning and Uncertainty Assessment for Enhanced Performance

Erbet A. Costa, Carine M. Rebello, Leizer Schnitman, José M. Loureiro, Ana M. Ribeiro, Idelfonso B. R. Nogueira | NTNU, Norway

P40 - Hierarchical Y and MCM-22 zeolites prepared through surfactant mediated technology

Ana Paula Carvalho, Beatriz matos, Mariana Matos, Nelson Nunes, Maria S. Santos, José Coelho, Angela Martins | Faculdade de Ciências - Universidade de Lisboa, Portugal

P41 - Modified ZSM-5 and BEA through chemical and mecanochemical methods for Fenton reactions.

Ana Paula Carvalho, José Costa, Angela Martins, Nelson Nunes | Faculdade de Ciências - Universidade de Lisboa, Portugal

P42 - Techno-economic analysis of the industrial production of MIL-120(AI).

Marta Bordonhos, Abeer Al Mohtar, Bingbing Chen, Rosana V. Pinto, Moisés Pinto, Farid Nouar, Georges Mouchaham, Christian Serre | Universidade de Lisboa, Portugal

P43 - Effect of water loading on the stability of pristine and defected UiO-66. A simulation study.

E. Acuna-Yeomans, P. J. Goosen, J. J. Gutierrez-Sevillano, D. Dubbeldam, S. Calero | Eindhoven University of Technology, The Netherlands

P44 - Synthesis of TiO₂/SiO₂ monolithic aerogels reinforced with cellulose fibers for adsorption.

Hávila M. M. S. Sales, Claudio M. R. Almeida, Luisa Durães, Juliana F. De Conto, Sílvia M. Egues | Universidade Tiradentes, Brazil

P45 - High-pressure CO₂ capture using Monolithic Silica Aerogels.

Thauane Selva Lima da Silva, Marília R. Oliveira, Tamires R. Menezes, Katilla C. Santos, Klebson S. Santos, Gustavo R. Borges, Cláudio Dariva, Juliana F. De Conto, **Sílvia M. Egues** | Universidade Tiradentes, Brazil

P46 - Fixed bed adsorption column studies for the removal of antibiotics from water using biochar prepared from brewery residues.

Érika M. L. Sousa, Marta Otero, María V. Gil, Valdemar I. Esteves, Vânia Calisto
| Universidade de Aveiro, Portugal

P47 - Selective recovery of platinum group metals from HCl-based leachates using bio-based materials.

Amir Nobahar, Filipe Hobi Bordón Sosa, Helena Passos, João A. P. Coutinho |
CICECO - Aveiro Institute of Materials, Portugal

P48 - Enhancement of gas transport properties of polyurethane-based membranes for blood oxygenation.

Tiago J. Ferreira, Rita F. Pires, Inês Coelho, Sérgio B. Gonçalves, Vasco D. B. Bonifácio, Moisés L. Pinto, Mónica Faria | Instituto Superior Técnico -
Universidade de Lisboa, Portugal

P49 - Porous Ti-MOF for Dual Release of NO/H₂S for Therapeutic Applications.

João Pires, M. Batista, S. Wang, C. Serre, M.L. Pinto | Faculdade de Ciências -
Universidade de Lisboa, Portugal

P50 - Adsorption desalination using LTA type zeolites: A molecular simulation approach.

Arjen Smetsers, Sofia Calero, **Ana Martin-Calvo** | Universidad Pablo de
Olavide, Spain

P51 - Unveiling acid sites of Nb₂O₅ for microalga *Chlorella* sp. valorisation by ssNMR.

Marina Ilkaeva, Serena Lima, Elisa García-López, Igor Krivtsov, Carlos Bornes, Luís Mafra, Francesca Scargiali, Giuseppe Marci | University of Oviedo, Spain

P52 - Separation of volatile fatty acids with adsorption-based methods.

Cristiana Gomes, Alexandre Ferreira, Ana Mafalda Ribeiro, Alírio Rodrigues | Faculdade de Engenharia - Universidade do Porto, Portugal

P53 - Evaluation of the adsorption capacity of hydrothermally carbonized apple pruning residues.

Antxustegi M.M., Corro E., Tolosa M., Murua Berrio J., González Alriols M. | University of the Basque Country (UPV/EHU), Spain

P54 - Adsorption of n-hexane isomers in montmorillonite and laponite / zeolite L pellets.

João Pires, Daniel Pereira | Faculdade de Ciências - Universidade de Lisboa, Portugal

P55 - Ionic carbon nitrides for photocatalytic hydrogen peroxide production in biphasic systems.

Igor Krivtsov, Dariusz Mitoraj, Radim Beranek | Universidad de Oviedo, Spain

P56 - CH₄/CO₂ separation by Pressure Swing Adsorption process using shaped MOF MIL-160(Al): Experimental and Simulation assessment.

Mohsen Karimi, **Rafael M. Siqueira**, Alírio E. Rodrigues, Farid Nouar, José A. C. Silva, Cristian Serre, Alexandre F. P. Ferreira | Universidade Federal do Ceará, Brazil

P57 - Microwave-Assisted Synthesis of Zeolites from clays for CO₂ Adsorption.

Marilia Rafaele Oliveira, Juan Antonio Cecilia, Daniel Ballesteros- Plata, Isabel Barroso-Martín, Pedro Núñez, Antonia Infantes-Molina, **Enrique Rodríguez-Castellón** | Universidad de Málaga, Spain

P58 - Polyxometalates supported on silicon xerogels. New materials for catalysis and sensorics.

Beatriz Rosales-Reina, Guillermo Cruz-Quesada, Santiago Reinoso, César Elosúa, M.V. López-Ramón, **Julián J. Garrido** | UPNA, Spain

P59 - Improved adsorption system for hydrogen drying.

Tiago Santos, Rita Moreira, Frederico Relvas, Paulo Ribeirinha, Adélio Mendes | Faculdade de Engenharia - Universidade do Porto, Portugal

P60 - Waste-Based Magnetic Activated Carbon and its Microwave-Assisted Regeneration for the Removal of Low Concentrations of Sulfamethoxazole from Water

Diogo Pereira, María Victoria Gil, Nuno João O. Silva, Vânia Calisto, **Marta Otero** | Universidad de León, Spain

DVS CARBON

Gravimetric CO₂ Capture Analyzer

Introducing our latest addition to the DVS family, DVS Carbon is the first purpose built gravimetric sorption analyzer for advanced carbon capture applications. In most gas phase carbon capture applications, CO₂ is rarely the only chemical species present. Generally, there are other species competing with CO₂ for those adsorbent sites, including water vapor. The new DVS Carbon enables the measurement of CO₂ capture experimental data in real life conditions by controlling both, temperature and humidity across a broad range of CO₂ concentrations.



Main Features

- CO₂ gravimetric sorption analyzer
- Water vapor sorption analyzer
- Co-adsorption of CO₂ and water vapor
- Easy access to kinetics, sorption/desorption and hysteresis measurements
- Patented Speed of Sound for CO₂ measurement
- True0 drying at 0.0% RH
- Dual configuration for broad range of CO₂ concentrations*
 - High (0-98%)
 - Low (e.g. 400 ppm)

*Requires a cylinder of CO₂ be connected to the DVS instrument

Full Isotherm CO₂ Sorption

- CO₂ and water isotherms available from 5-85 °C
- In-situ drying/activation of the sample up to 200 °C
- Data highlights a relationship between sorption temperature and CO₂ capacity of the MOF sample

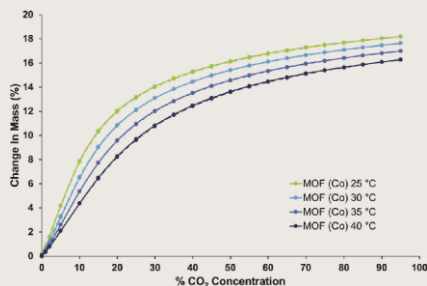


Figure 1: Plot of CO₂ sorption/desorption isotherms at 25-40 °C for a cobalt-based MOF sample



The Choice Is Clear. Absolutely Autosorb.

Autosorb series

Rely on TruZone active coolant level control for accurate data

Stay Agile: measure 3 samples, 3 gases, 3 temperatures at once

Accessible Kaomi software makes experiment setup and data analysis easy

Adaptable: Customize one of three advanced instrument models to meet your needs

www.anton-paar.com

**EMPOWERING INDUSTRIES
WITH CUTTING-EDGE
PRESSURE SWING ADSORPTION
TECHNOLOGY**



sysadvance[®]

*SYSADVANCE Leads the way in innovative
Gas Generation and Purification Solutions*

INDUSTRIAL

PSATECHNOLOGY
NITROGEN
SERIES

PSATECHNOLOGY
OXYGEN
SERIES

VPSATECHNOLOGY
OXYGEN
SERIES

VPSATECHNOLOGY
HELISYS[®]

MEDICAL

PSATECHNOLOGY
OXYGEN M
SERIES

PSATECHNOLOGY
AirSYS M

ENERGY

METHAGEN **AD**
Anaerobic Digestion

HIGH PERFORMANCE
METHAGEN **LF**
Landfill Gas Upgrading

VPSATECHNOLOGY
HYDROGEN **PURE**



www.sysadvance.com



ATA 43

**XLIII Reunião Ibérica de Adsorção
Porto, Portugal
1-4 September 2024**

