



**ICoWEFS**  
2022

INTERNATIONAL CONFERENCE ON WATER,  
ENERGY, FOOD AND SUSTAINABILITY

Portalegre, Portugal

10-12 May 2022

## Program

### Important notes:

- Oral presentations will have 10 minutes + 5 minutes for discussion
- Poster presenters should deliver their posters at the registration desk, to be hung in the designated room (Rooms E2 and E3, Superior School of Technology and Management, IPPortalegre, Campus Politécnico).

### Zoom link

<https://videoconf-colibri.zoom.us/j/89903046728?pwd=dldsdk4waDVkcVJlaHVScFZBY1RpZz09>

**May 10<sup>th</sup>**

**8.30 – 9.00 h: Registration and Presentation delivery**

**9.00-9.15 h: Opening Ceremony**

*(Dr. Francisco Tomatas Auditorium)*

Prof. Luís Loures, President of IPPortalegre Prof. Paulo Brito, IPPortalegre and Prof. João Rafael Galvão, IPL

### Keynote

*(Dr. Francisco Tomatas Auditorium)*

**9.15-9.45 h: “Management of biomass parks in power generation plants”,** by Julio Terrados-Cepeda, University of Jaén (online)

### Parallel Sessions

**Session 1 - Energy & Sustainability**

*(Dr. Francisco Tomatas Auditorium, Chair: Paulo Brito, IPPortalegre)*



Organization:



Sponsors and Exhibitors:



Event's editor:



**9.50-10.05 h:** “Characterization and feasibility of fruit tree pruning for energy use”, José Ignacio Arranz, María Teresa Miranda, Pilar Romero Muñoz, Francisco José Sepúlveda and Irene Montero (online)

**10.05-10.20 h:** “Using Machine Learning to Identify Solid Biofuels”, Mónica Vieira Martins, Valentim Realinho and Luiz Rodrigues

**10.20-10.35 h:** “A Review on Gaseous Fuels for Dual-Fuel Diesel Engines”, Nadezhda Silva Krop and Paulo Brito (online)

**10.35-10.50 h:** “Characterization of fine grounds obtained in the production of sour cherry liqueur: a by-product valorization”, Iris Barreto, Madalena Antunes, Ângela Faria, Susana Silva, Carla Tecelão, Maria Jorge Campos and Marta Neves

**10.50-11.05 h:** “Exploratory research on the incorporation of PET fines as feedstock into recycling processes”, Bruna Nascimento, Fernando Bozzola, Joel Vasco, Milena Parnigoni, Lizete Heleno, Marcelo Gaspar and Nelson Oliveira

**11.05-11.30 h: Coffee break and Poster Session**

*(Rooms E2 and E3, Superior School of Technology and Management, IPPortalegre, Campus Politécnico.)*

**11.30-11.45 h:** “Design, energy and comfort in auditoriums with complex topology”, Eusébio Conceição

**11.45-12.00 h:** “A Systematic Review Of The Bim Methodology Applied To The Management And Sustainability Of Hospital Centers”, Francisco Javier Montiel Santiago, Manuel Jesus Hermoso Orzáez and Julio Terrados-Cepeda

**12.00-12.15 h:** “Transport development challenges of brownfield investments in the name of sustainability”, Petra Szakonyi and Emese Makó

**Session 2 – Water & Nexus**

*(Room 2.07, Chair: Luiz Rodrigues, IPPortalegre)*

**9.50-10.05 h:** “Seasonal weather sensitivity of staple crop rice in south India”, Souryabrata Mohapatra, Basil Sharp, Auro Kumar Sahoo and Dukhabandhu Sahoo (online)

**10.05-10.20 h:** “How perceived knowledge on water usage influences intention to apply smart water meters?”, Konstantinos Madias, Andrzej Szymkowiak and Barbara Borusiak (online)

**10.20-10.35 h:** “Water Shed Safety Plan - a new tool for water protection”, Harri Mattila

**10.35-10.50 h:** “Circular Economy of Water: A Review of Scientific Production”, Gustavo Yuho Endo and Giane Gonçalves Lenzi (online)

**10.50-11.05 h:** “Producing Cyanobacteria to use as biostimulants”, Teresa Mouga, Fátima Simões, Vitória Moreira, Rute Ramos, Carolina A. Ferreira, Alice Martins, Marta V. Freitas and Clélia Afonso

### **11.05-11.30 h: Coffee break and Poster Session**

*(Rooms E2 and E3, Superior School of Technology and Management, IPPortalegre, Campus Politécnico.)*

**11.30-11.45 h:** “Reactant or product: Fate of water during HTC under different conditions”, Silvia Román, Rocío García-Morato, Beatriz Ledesma and Sergio Nogales-Delgado

**11.45-12.00 h:** “Energy Rehabilitation Of Residential Buildings: Proposed Solutions For Bragança City”, Silvia Maria Fernandes (online)

**12.00-12.15 h:** “Future Electric Mobility: A Co-Creation Process”, Adriano Moreira, Archee Verma, José Catarino, Leandro de Souza, Maria Inês Silva, Paulo Lourenço, Marcelo Gaspar, Luís Serrano, João Pedro Silva, Jorge Julião and Jarmo Tuominiemi (online)

**12.15-12.30 h:** “Operationalizing the Water, Energy and Food Nexus Through the Law”, Nicola Harvey

### **Session 3 – Water & Energy and Sustainability**

*(Room 2.12, Chair: Catarina Nobre, IPPortalegre)*

**9.50-10.05 h:** “Biolubricant production from vegetable oils through double transesterification: influence of fatty acid composition and alcohol on quality parameters”, Sergio Nogales-Delgado, José María Encinar and Juan Félix González (online)

**10.05-10.20 h:** “Energy Certification of Existing Residential Buildings: Adaptations to the Energy Transition”, Silvia Maria Fernandes (online)

**10.20-10.35 h:** “Post-treating biomass hydrochars to improve their suitability at soil amendment, Teresa Sosa, Cristina Tena, Beatriz Ledesma, Silvia Román and Carmen María Álvarez

**10.35-10.50 h:** “From Extraction to Reparation: American National Security and Territorial Adaptation in the Climate Crisis”, William Shivers (online)

**10.50-11.05 h:** “Analysis of the digestate obtained in experiences in a pilot plant in Extremadura and study of the possible effect produced as an organic fertilizer in pepper plants”, Ana Isabel Parralejo Alcobendas, Luis Royano Barroso, Juan Cabanillas Patillas and Jerónimo González Cortés (online)

### 11.05-11.30 h: Coffee break and Poster Session

*(Rooms E2 and E3, Superior School of Technology and Management, IPPortalegre, Campus Politécnico.)*

**11.30-11.45 h:** “Comparative Analysis of Inrush Current And Harmonic Generation In The Replacement Of Incandescent Lamps By Led Luminaires In Urban Lighting”, Juan de Dios Unión Sánchez, Manuel Jesús Hermoso Orzáez, Julio Terrados Cepeda and Blas Ogáyar Fernández (online)

**11.45-12.00 h:** “Thermodynamic and Kinetic Analyses of Corn Crop Residue”, Raquel Garcia-Mateos, Maria Teresa Miranda, Jose Ignacio Arranz, Pilar Romero, Francisco J Sepúlveda and Santiago CuÉllar-Borrego (online)

**12.00-12.15 h:** “Technological audit as a strategy to improve products and services related to energy technologies applied to buildings”, António Costa, Carlos Figueiredo Ramos and Rui Pitarma (online)

### Keynote

*(Dr. Francisco Tomatas Auditorium)*

**12.30-13.00 h:** “Some applications in hydrogen, renewable energy and bioenergy”, by José Luz Silveira, Federal University of ABC and UNESP (online)

### 13.00-14.30 h: Lunch

*(Rooms E2 and E3, Superior School of Technology and Management, IPPortalegre, Campus Politécnico.)*

### End of Day 1

**May 11<sup>th</sup>**

## Keynotes

*(Dr. Francisco Tomatas Auditorium)*

**9.00-9.30 h:** “Combating climate change with phytoremediation. Is it possible?”, by Ana Luísa Fernando, FCT-NOVA

**9.30-10.00 h:** “Hybrid Membrane Gas Absorption Technology for the Decarbonization of the Maritime and Energy Intensive Industries”, by George Skevis, CERTH

### 10.00 – 10.30 h: Coffee break and Poster Session

*(Rooms E2 and E3, Superior School of Technology and Management, IPPortalegre, Campus Politécnico.)*

## Session 4 – Energy & Sustainability

*(Dr. Francisco Tomatas Auditorium, Chair: João Galvão, IPL)*

**10.30-10.45 h:** “An optically approachable combustion chamber for determining the characteristics of combustion of process, mixed and natural gases on a near-industrial scale”, Sven Eckart and Hartmut Krause

**10.45-11.00 h:** “Minimising trade-offs within the water-energy-food-environment nexus under climate change”, Annika Schlemm

**11.00-11.15 h:** “Engagement with the Community and Partnerships for Sustainable Food Production and Consumption in Portuguese Higher Education Institutions”, Aldina Soares

**11.15-11.30 h:** “Industrial sustainability in Southwestern Europe: A case study of the possible implementation of biorefineries based on oil seed crops in Extremadura”, Carmen María Álvez Medina, Sergio Nogales-Delgado, José María Encinar and Juan Félix González (online).

**11.30-11.45 h:** “Algae Waste Processing into Syngas and Biochar as a Carbon Capture Tool”, Maris Klavins

**11.45-12.00 h:** “Meso and macroporosity in carbonaceous materials prepared by thermal treatment from lignocellulosic wastes”, Consolación Sánchez, Almudena González-González, Roberta Panizio, Paulo Brito, Vicente Gómez Serrano, Francisco Cuadros Blázquez and Carmen Fernández González

**12.00-12.15 h:** "O papel das políticas públicas na afirmação de destinos turísticos sustentáveis: uma análise ao destino Aldeias Históricas de Portugal", Paula Reis and Ana Balão

**12.15-12.30 h:** "Establishing Biorefinery Complexity Index and Profile for a Spent Coffee Ground Based Biorefinery", Luiz Rodrigues

**Session 5 – Special Session (Project PAPEPO and Project AmbWtE)**  
(Room 2.07, Chair: Luís Calado, IPPortaelgre)

**10.30-10.45 h:** "PAPEPO - Papel Pedra Portugal", João Fernandes

**10.45-11.00 h:** "Plastic waste streams for stone paper production – Project PAPEPO", Catarina Nobre, Roberta Panizio, Luís Calado and Paulo Brito

**11.00-11.15 h:** "How can paper be produced from mineral sources instead of cellulose?", Gabriela Martins, Anabela Massano and Artur Mateus

**11.15-11.30 h:** "Use of dimensional stone processing wastes as secondary raw materials", Alexandre Miguel Ribeiro Vieira

**11.30-11.45 h:** "Evaluation of the possibility to use by-products of gasification and carbonization from polymeric residues and biomass", Ana Carolina Assis, Luís Calado, Roberta Panizio, Vitor Matos, Helena Calado, Paulo Brito and Paulo Mourão

**11.45-12.00 h:** "Gasification potential of Solid Recovered Fuels (SRF) produced in Portugal", Nuno Pacheco, André Ribeiro, Jorge Araújo, Cândida Vilarinho and Joana Carvalho (online)

**12.00-12.15 h:** "Dry and Hydrothermal carbonization of mixtures of refuse derived fuels, waste biomass and sewage sludge" Andrei Longo, Cândida Vilarinho, José Carlos Teixeira, Paulo Brito, Margarida Gonçalves

**12.15-12.30 h:** "The influence of fuel mix on the devolatilization of RDF based coal", Carlos Castro, José Carlos Teixeira, Cândida Vilarinho, João Silva, Margarida Gonçalves, André Ribeiro and Nuno Pacheco (online)

**Session 6 – Water, Energy & Nexus**  
(Room 2.12, Chair: Paulo Brito, IPPortalegre)

**10.30-10.15 h:** “A model to evaluate the sustainability of buildings within urban environments”, Lisiane Librelotto, Paulo Ferroli, Flávio Craveiro and Helena Bártolo (online)

**10.45-11.00 h:** “Application of a pine tree in the evaluation of environment thermal conditions”, Eusébio Conceição, M<sup>a</sup> Manuela Manuela, João M. Gomes, Jorge Raposo, Xavier Viegas and M<sup>a</sup> Teresa Viegas\_(online)

**11.00-11.15 h:** “Relevant issues in the management of biomass parks in power generation plants”, Julio Terrados-Cepeda and Pedro J. Lara-Chaves (online)

**11.15-11.30 h:** “Environmental sustainability of plastic packaging on the life cycle of ready-made meals: A case study”, Cristiano Paiva, Ana Isabel Silva, Marcelo Gaspar, Luis Serrano, Nelson Oliveira, Lizete Heleno and Joel Vasco (online)

**11.30-11.45 h:** “Green biomaterials: Applications of plant-derived biofilms”, Tiago Parracho, Daniela C. Vaz, Paula Veríssimo and Vânia Ribeiro

**11.45-12.00 h:** “Biomicrogel®: eco-friendly technology for oil spill response”, Vladimir Kuimov, Andrey Kryazhov, Maxim Kudryavtsev, Andrey Elagin, Alexander Yagupov and Maxim Mironov

**12.00-12.15 h:** “An Effective Solution for reinforcing 3D concrete Printable Composites”, Yeşim Tarhan, Flávio Craveiro and Helena Bártolo (online)

**12.15-12.30 h:** “Waste Water Treatment Plants Sludge Solar Drying – Review”, Jorge Frazão, Luiz Rodrigues, Filipe Baptista Neves dos Santos

**12.30-12.45 h:** “Digital Fabrication in Construction Industry in Africa”, Karim Fahfouhi, Dino Freitas, Philippe Poullain, Flávio Craveiro and Helena Bártolo

### 12.30-14.30 h: Lunch

*(Rooms E2 and E3, Superior School of Technology and Management, IPPortalegre, Campus Politécnico.)*

**18.30 h: Networking Cocktail** (previously designated as **Dinner Gala**)  
*(Convento de Santa Clara, Portalegre)*

## End of Day 2



**May 10 and 11<sup>th</sup>**

### Poster Sessions

10.00 – 11.30 h (Rooms E2 and E3, on both days)

- Towards sustainable seaweed production - optimising the culture of *Gracilaria gracilis*, Francisco Ferreira, Marta V. Freitas, Mário Cavaco and Teresa Mouga
- Energy Efficiency and Sustainability in an Aquaponic Greenhouse Supported by IoT, João Galvão, Pedro Santos, Luís Aires, Vânia Ribeiro and Filipe Neves
- Design Sustainable Products in a Circular Economy Context, João Honório, Ana Simões, João Galvão and Filipe Neves
- Analysis of the mechanical behavior of modified mortars with ash residues from biomass gasification with WEEE plastics, Daniel Diaz Perete, Manuel Jesus Hermoso Orzáez, Luis Felipe Do Carmo Calado, Roberta Mota Panizio and Paulo Sd Brito
- Treatment of pig farming effluents by coagulation with alkaline wastes, atmospheric carbonation, and bioremediation with microalgae, Bruna Petry, Gonçalo Lourinho, Catarina Nobre, Paulo Brito and Margarida Gonçalves
- Catalytic gasification of coals and biochars, Santa Margarida Santos, Catarina Nobre, Paulo Brito and Margarida Gonçalves
- State-of-the-Art of Dual-Fuel Diesel Engines: A Review, Nadezhda Silva Krop and Paulo Brito
- Dry and Hydrothermal carbonization of mixtures of refuse derived fuels, waste biomass and sewage sludge, Andrei Longo, Cândida Vilarinho, José Carlos Teixeira, Paulo Brito and Margarida Gonçalves
- Binary and ternary mixtures for SI engines: A review, Luis Durão, Ana Paula Oliveira, Jorge Martins and Margarida Gonçalves
- Combating climate change with phytoremediation. Is it possible?, Ana Luisa Fernando and Leandro Gomes



- Improving the circularity of plastics on hot beverages vending machines: A case study, André Quiaios, Maria Lizete Heleno, Nelson Oliveira, Marcelo Gaspar and Joel Vasco
- Circularity of plastics in food packaging: A case study, André Quiaios, Maria Lizete Heleno, Nelson Oliveira, Marcelo Gaspar and Joel Vasco
- Obtaining new alkali-activated binders from waste of different sources, Gómez-Casero, M.A., Pérez-Villarejo, L., Eliche-Quesada, D.
- Ink removal on plastic films printed by flexography, Fernando Bozzola, Bruna Nascimento, Joel Vasco, Nelson Silva, Fernando Lagoa, Maria Lizete Heleno, Marcelo Gaspar and Nelson Oliveira

**May 12<sup>th</sup>**

**8.30-16.00 h: Optional Technical Visits**

*(A bus is available to these visits, from Portalegre, and then leaving the participants at Lisbon Airport)*

8.30 – 9.00 h: BioBIP Installations, Portalegre

9.30 – 10.30 h: Transnil SA, Portalegre

13.00 – 14.00 h: Lunch

15.00 h – LNEG – Laboratório Nacional de Energia e Geologia (National Laboratory for Energy and Geology), Lisboa

**End of Conference**