

ICEUBI22

28 – 30 Nov.

International Congress
on Engineering

Innovation &
Sustainability Praxis

— www.iceubi.ubi.pt —

Faculty of Engineering
University of Beira Interior

Covilhã, Portugal

UBI UNIVERSIDADE
BEIRA INTERIOR

UBI FACULDADE
ENGENHARIA

ORDEM
DOS
ENGENHEIROS

ORDEM DOS
ARQUITECTOS

COVILHÃ
A TODA A ESCALA

ADC
ÁGUAS DA COVILHÃ, EM

AGUAS do
VALE do TEJO
Grupo Águas de Portugal

ANYWIND

REN

REN

CONFERENCE PROGRAM

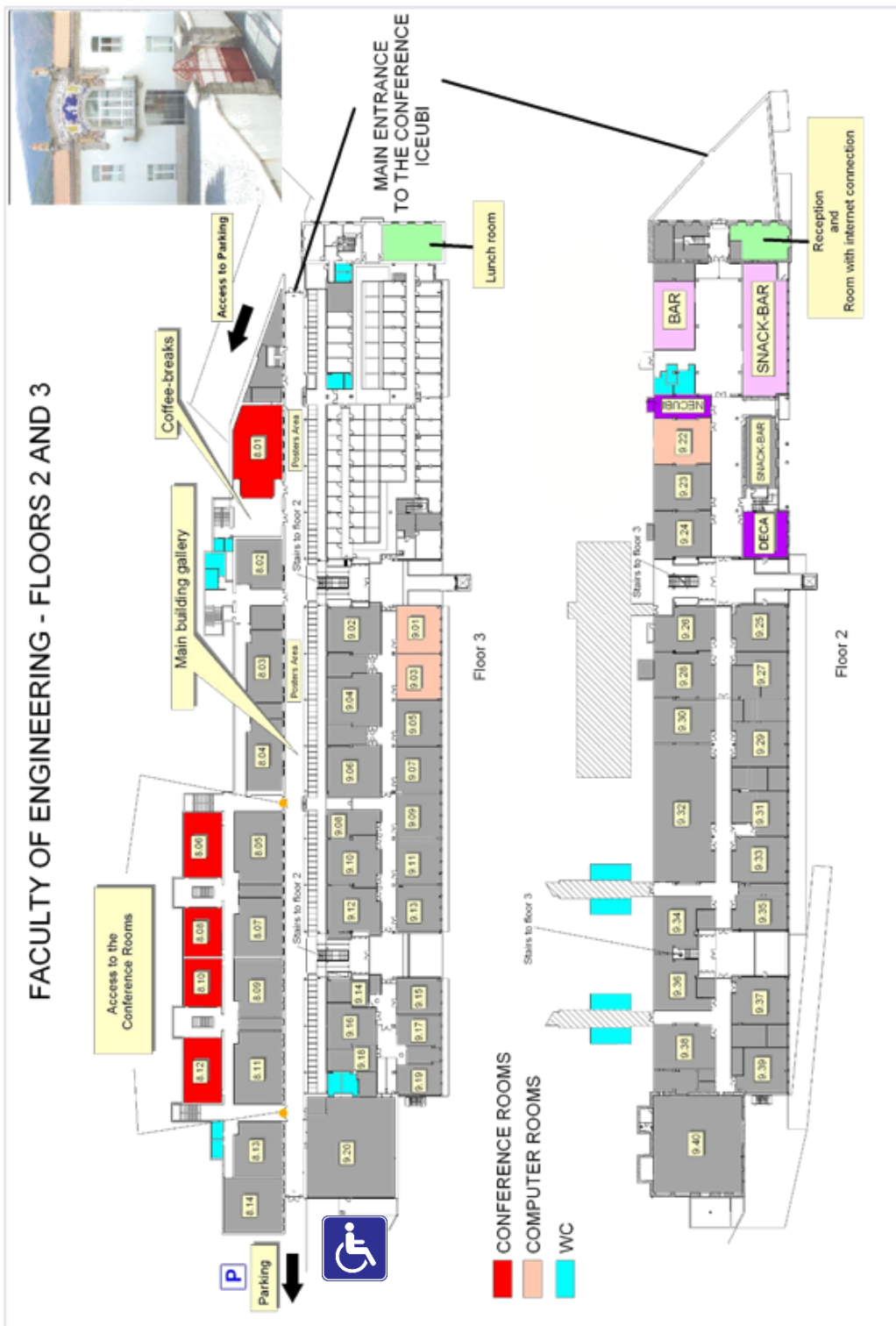
November 28 29 30
University of Beira Interior
Faculty of Engineering Covilhã :: Portugal

ICE
UBI
22

International Congress on Engineering Innovation and Sustainability Praxis



FACULTY MAP



NOVEMBER 28TH

11:30-13:00 Reception - MSc Room FEUBI

14:30 – ICEUBI2022: OPENING CEREMONY - Auditorium 8.1

Mário Raposo, Rector of University of Beira Interior

Sílvia Socorro, Vice-Rector for Research, Innovation and Development

Hélio Fazendeiro, Head of Office of Mayor of Covilhã

Mário Freire, President of Faculty of Engineering, University of Beira Interior

Andreia Garcia, Co-chair of the Congress

15:30-16:00 Coffee break

16:00-17:00 Auditorium 8.1

Keynote Speakers on debate:

Gonçalo Byrne Architects Council President

Fernando de Almeida Santos Engineers Council President

Chair: Andreia Garcia

14:30 – 16:00 Auditorium 8.1

Keynote Speaker: Eduardo Souto de Moura

Chair: Andreia Garcia

NOVEMBER 29TH

9:15 – 11:00 Auditorium 8.1

Special Session

Symposium UNITA on Multiphysics

Chair: José Páscoa (UBI), Frederic Marias (UPPA), Victor Sofonea (UVT)

Cassiane Oliveira Martins and Frédéric Marias

Plasma Reactor Heat-up Study by using CFD Simulation

Mohammad Reza Pendar and José Carlos Páscoa

Advances in Evaluation of Effective System Parameters in Electrostatic Spraying

28th November 2022

29th November 2022

Mohammadmahdi Abdollahzadehsangroudi, Frederico Rodrigues, Fatemeh Bagherighajari, João Nunes-Pereira, José Carlos Páscoa and Farid Dolati
Enhanced surface cooling with Dielectric barrier discharge plasma actuators

Sílvia Cândido and José C. Páscoa
Numerical Simulation of Axisymmetric Electrohydrodynamic Jets with Volume of Fluid Method

Odelma Teixeira and José Páscoa
Numerical simulation of hypersonic nozzle flows in vibrational non-equilibrium

Victor Sofonea
Discrete Boltzmann models based on Gauss-Hermite quadratures : construction and applications

Felipe Costa, Andrea Navarro-Puyuelo, Inés Reyero, Luis M. Gandía and Fernando Bimbela
Dry Reforming of Biogas over Structured Catalytic Reactors: Modelling, Simulation and Parametric Study

9:45 – 11:00 Room 8.6

Thematic Session

Aircraft Aerodynamics, Propulsion and Performance & Aircraft and Spacecraft
Design & Aircraft and Space Dynamics
Chair: Anna Guerman e Miguel Silvestre

Ricardo J.F. Palmeira and Pedro V. Gamboa
Comparison between parallel and series hybrid propulsion configurations for a VTOL Unmanned Aerial Vehicle

João Pedro S. Vale, Henrique D. Alves, Alexandre M. Reis, Sérgio Brito, Pedro Gouveia, André Oliveira and Nuno Quitério
Design of a solid rocket propulsion system

Diogo Simão and Francisco Brójo
Optimization of a supersonic mixed compression intake

Inês Pereirinha and Francisco Brójo
Simulation of the performance of a detonation wave engine

Alexandre Nunes and Francisco Brójo
Impact of the Rotor Material on the Performance of an Eddy Current Brake

10:15 – 11:00 Room 8.8

Thematic Session

Electrical and Computer Engineering & Computer Science and Engineering

Chair: Maria do Rosário Calado e Davide Fonseca

Kundakama Mpanda, Fernando Bento and Antonio J. Marques Cardoso
*Verification of Compliance with the Regulations Applicable in the Distribution of
Electricity by ENDE-EP: Case of the Head Municipality of Uíge / Angola*

Alexandre M. Reis, Henrique D. Alves and Júlio P. Santos
Wireless device to measure thrust in a rocket test bench

Jorge Mendes, Filipe Rodrigues, Luis Coelho and Nuno Henriques
Application of the Nearly Zero Energy Building concept to a new housing

10:00 – 11:00 Room 8.10

Thematic Session

**Geographic information Systems and Geomatics & Mobility and Transport
Engineering**

Chair: Jorge Gonçalves

Vanessa Gonçalves, António Albuquerque, Pedro Almeida and Victor Cavaleiro
*Assessment of the groundwater contamination potential with cemeteries runoff in the
Soure region (Portugal) using GIS tools*

Joaquim Condeça, Carmen Carvalheira, Colatino Simplício, José Rosado and José Projeto
A evolução da Plataforma SIG da CCDR Alentejo

Marisa Cerca and Bertha Santos
GIS-BASED NETWORK ANALYSIS TO SUPPORT FIRST INTERVENTION IN FOREST FIRES

Cláudia Mendes and Bertha Santos
*Optimization of Vehicle Routing for Bio-Waste Collection. Development of a decision
support tool for the Municipality of Oleiros, Portugal*

11:00 – 11:30 Coffee break

11:30 – 13:00 Auditorium 8.1

Special Session

Sustainable Solutions for the AgroFood Sector - S4Agro

Chair: Tânia Lima

Teresa Paiva, Maximiano Ribeiro and Paula Coutinho
Innovation Management and Sustainability in SMEs of the Portuguese agro-industrial sector – a capacity-building proposal

Pedro Dinis Gaspar, Tânia Miranda Lima, Joel Alves and Carlos Fernandez
Intelligent and/or active packaging - Benchmarking and best practices as an innovative and sustainable technological solution

Pedro Dinis Gaspar and Tânia Miranda Lima
Sustainable Solutions for the Agrifood Sector

Pedro Dinis Gaspar, Jorge Monteiro, João Carlos Gonçalves, Pedro Neto and Sofia Santos
Intelligent Prediction System for Decision Support in Sustainability

Pedro Dinis Gaspar, Carlos Lopes, Jorge Monteiro, Maria Vicente, Mário Rui Agostinho and Diogo Mexia Almeida
BioD'Agro - Intelligent operational system for information and decision support in AgroBiodiversity

Pedro Dinis Gaspar, Dina Pereira, Isabel Falorca, Cristina Fael and João Leitão
MED-WET: An smart farming approach for agri-food smallholder farmers

11:30 – 13:00 Room 8.6

Thematic Session

**Aircraft Aerodynamics, Propulsion and Performance & Aircraft and Spacecraft
Design & Aircraft and Space Dynamics
Chair: Kouamana Bousson e Miguel Silvestre**

António Duarte and Francisco Brójo
Passive System for Combustion Optimization of Internal Combustion Engines

Luís Manuel V. Ferreira, João Pedro S. Vale, Henrique D. Alves and Pedro V. Gamboa
Aircraft structural analysis using beam-torsion finite elements and thin-walled beam theory

Hugo Rocha, Pedro Alves, André Rodrigues, Luis Parada and Miguel Silvestre
PROPELLER DESIGN AND OPTIMIZATION FOR AN EVTOL UAV CONSIDERING PRANDTL'S ROOT CORRECTION

Carlos Velosa, Paulo Figueiredo, Nuno Santos, Márcia Lima and José Vasconcelos
Automatic Control of a Quadrotor for Asbestos Detection in Civil Infrastructures

11:30 – 13:00 Room 8.8

Thematic Session

Electrical and Computer Engineering & Computer Science and Engineering

Chair: José Pombo e José Salvado

José Braga de Vasconcelos, Paulo Vasconcelos Figueiredo, Carlos Velosa, Nuno Correia Santos and Márcia Lima

Automated remote detection of asbestos fibers at construction sites using machine learning techniques

Pedro Lemos, Guilherme Oliveira and Bruno Silva

An IoT Ecosystem for Indoor Environment Monitoring in Rural Regions

Antonio Reis, Jose Rocha, Atilio Gameiro and Jose Carvalho

Coder and Decoder of Block mBnB Explicitly the 7B8B Full

Antonio Reis, Jose Rocha, Atilio Gameiro and Jose Carvalho

Coder and Decoder of Block 7B8B Full with Auxiliary Channel

11:30 – 13:00 Room 8.10

Thematic Session

**Geographic information Systems and Geomatics & Mobility and Transport
Engineering**

Chair: Jorge Gonçalves

Joaquim Condeça and Carmen Carvalheira

Projeto Transporte a Pedido no Alentejo

Pollyanna Lucena, Sandro Ferreira and Bertha Santos

Spatial multi-criteria analysis to assess urban roads suitability for soft mobility

Joaquim Condeça, Carmen Carvalheira and Patrícia Silva

Aplicações SIG na gestão Ambiental e territorial na CCDR Alentejo

Asya Mudher, Pedro Almeida, Rui Fernandes, Rana Mozahim Hamdoon and Mudhaffar Al-Zuhai

Flood Hazard and Risk Assessment Using GIS and Remote Sensing in Missan and Simawa, Iraq

14:30 – 16:00 Auditorium 8.1

Special Session

Application of new technologies in agriculture and agroindustry: Opportunities and Challenges

Chair: Pedro Dinis Gaspar

16:00 – 16:30 Coffee break

16:30 – 18:00 Auditorium 8.1

Security and Defense Workshop

Org: Francisco Brójo and Air Force Academy

16:30 – 18:00 Room 8.6

Thematic Session

Architecture

Chair: Alexandra Saraiva

Cristiana Castro Paiva Belém de Oliveira and Angélica Tanus Benatti Alvim

Bicicletar: uma reflexão sobre o programa de bicicletas compartilhadas em Fortaleza -CE

Diego Martín de Torres

The Regeneration of Urban Space through Collaborative Art: The Case of Boa Mistura

Daniel Vale

Vitruvio, Alberti, Palladio and the architecture of old roads - the case of Via Antiqua

Maria Antónia Vieira, Mafalda Sampaio and João Alves da Cunha

Um modelo visitado da arquitetura chã: as igrejas de São Miguel nos Açores

16:30 – 18:00 Room 8.8

Thematic Session

Fluid Mechanics and Machinery & Bioengineering

Chair: João Monteiro e André Vieira

Ricardo Cardoso, Sérgio Costa, Cláudia Casaca, Alda Carvalho and Isabel Malico

Assessing the obstacle effect on jet fan flow variability in car parks using computational fluid dynamics

Miguel Moreira, José Páscoa, Frederico Rodrigues and Sílvio Cândido

Development and validation of a background oriented schlieren (BOS) system for air density and temperature quantification

Frederico Rodrigues, Mahdi Abdollahzadeh, João Nunes-Pereira and José Páscoa
Plasma Actuators as novel means for icing control and aerodynamic enhancement

16:30 – 18:00 Room 8.10

Thematic Session
Textile Science and Engineering
Chair: Nuno Belino

Ana Santiago, Cláudia Pinheiro and Nuno Belino
NETTLE FIBRE: A SUSTAINABLE ALTERNATIVE

Maria Madalena Rocha Pereira, Teresa Raquel, Marta Bicho, Paulo Martins and Benilde Reis
THE CONTRIBUTION OF 3D VIRTUAL FASHION PRODUCT DEVELOPMENT TO THE SUSTAINABILITY AND PRODUCTIVITY OF THE TEXTILE AND APPAREL INDUSTRY

Benilde Reis, Rui Miguel, Jose Lucas, Madalena Pereira, Cláudia Pinheiro, João Carvalho, Rosário Grazina, Fernando Moreira da Silva and Manuel Santos Silva
Design of Functional Tri-Laminated Wool Fabrics Optimizing Mechanical Properties

Teresa Raquel Barata, Maria Madalena Rocha Pereira and Nuno Belino
The integration of management systems and sustainability in the Textile and Apparel Industry

20:00H CONFERENCE DINNER | HOTEL TRYP D. Maria

NOVEMBER 30TH

09:45 – 11:00 Auditorium 8.1

Thematic Session
Air transportation Engineering and Management
Chair: Jorge Miguel Reis Silva e Pedro Vieira Gamboa

Jorge Silva, Pedro Dinis Gaspar and Alex Almeida
Unmanned Aerial Vehicles Application in Agriculture: Possible Solutions for the Portuguese Territory

Luis Berenguel and Maria E. Baltazar
IMPACTES ECONÓMICOS, SOCIAIS E TURISTICOS DE AEROPORTOS. OS IMPACTES NA ÁREA DE INFLUÊNCIA DO AEROPORTO DE LISBOA

Josilene Sani and Maria E. Baltazar

29th November 2022

30th November 2022

Business Model of a Low-Cost Airline Company in Island Regions - Application to the Cape Verde Archipelago

Joana Faria and Maria E. Baltazar

Caracterização Socioeconómica e Análise do Impacto Económico Aeroportuário: O caso do Aeroporto de Ponta Delgada - João Paulo II, São Miguel, Açores, Portugal

Gerson da Silva and Maria E. Baltazar

Public Airports VS Private Airports: The Differences in Non Aeronautical Revenue

9:30 – 11:00 Room 8.6

Thematic Session

Water and Environmental Engineering & Geotechnical Engineering

Chair: Isabel Falorca

Marta Duarte, Antonio Albuquerque, Pedro Gabriel Almeida

Impact of radionuclides on drinking water quality

Maria Vitoria Morais, Leonardo Marchiori, Josivaldo Sátiro, Antonio Albuquerque and Victor Cavaleiro

Evaluation of biofilms formation and stabilization in non-woven geotextile material in contact with wastewater

Cláudia Casaca and Nuno Henriques

Deodorisation Control in a Covered Wastewater Treatment Plant

Dinis Gardete and Rosa Luzia

Experimental study on soils stabilized with shredded package labels

Flora Silva, Cristina Sousa Coutinho Calheiros, António Albuquerque and Ana Maria Antão-Geraldes

Influence of green roofs combined with rainwater harvesting on the water management of a metal-mechanical industry pavilion

Paulo Scalize, Ellen Gabriel, Tales Aguiar, Thayanara Oliveira, Nolan Bezerra, Humberto Carlos Junior and Antonio Albuquerque

Water quality in shallow hand-dug wells in rural settlements in Goiás – Brazil

9:30 – 11:00 Room 8.8

Thematic Session

Energy and thermal Machines & Thermodynamics and Heat transfer

Chair: Frederico Rodrigues e Helder Correia

30th November 2022

Miguel Campino, Luís Sousa and Gonçalo Duarte

Indirect method to assess the propulsion management system of plug-in hybrid electric vehicles

Raquel Carvalho, Gonçalo Duarte and Joaquim Monteiro

Evaluation of the energy impact with functional changes in NZEB buildings

Rodrigues Castro, Luís Pires and Pedro Silva

Estudo experimental do processo de secagem de um composto orgânico

João Ricardo, Goncalo Duarte and Nuno Henriques

Interaction between electric vehicle charging system using solar photovoltaic and railway energy grid at a train station

Afonso Lopes, Cláudia Casaca and Nuno Henriques

Comparative Analysis between Subcritical and Transcritical Systems in Commercial Refrigeration Facilities

Henrique Nunes, Goncalo Duarte, Filipe Rodrigues and Nuno Henriques

A Refrigeration Compressor Performance Algorithm Applied in a Cyber Tool

9:45 – 11:00 Room 8.10

Thematic Session

Fibrous Materials Engineering & Materials

Chair: João Nunes Pereira

Thalita Damaceno, André Cunha, Rogério Simões and Álvaro Vaz

A new path for circular economy: Improving cellulose dissolution from recycled paper

Fernando Júnior Resende Mascarenhas, André Eduardo Palos Cunha, Alfredo Manuel Pereira Geraldias Dias, André Luis Christoforo and Rogério Manuel dos Santos Simões

Analysis of the MW drying of sap and heartwood of Portuguese Pinus pinaster

Mariana Veloso, Tomas Węgrzyn, Bozena Szczucka and Abílio Silva

Evolution of the use of polymeric materials in mid-range cars

Paulo Santos, Abílio Silva, Paulo Reis and Carlos Coelho

Viscoelastic response of carbon laminates previously subjected to low velocity impacts

Duarte F. Macedo, Filipe J. Oliveira, Mariana B. Oliveira and Abílio P. Silva

Ceramic matrix with carbon allotropes: - characterization and improved mixed methodologies

11:00 – 11:30 Coffee break

11:30 – 13:00 Auditorium 8.1

Keynote Speakers on debate:
European Institute of Innovation & Technology (EIT)
Chair: Jorge Reis Silva (UBI)

11:30 – 13:00 Room 8.6

Thematic Session
Civil Engineering
Chair: João Pires da Fonseca

Cristina M. Monteiro, Cristina Santos, Cristina Matos and Ana Briga-Sá
Nature- based solutions contribution for urban resilience and sustainability

Ana Briga-Sá, José Teixeira, Alexandre Jerónimo and Mariana Fernandes
The influence of olive bagasse on the heat of hydration of ordinary Portland cement pastes based on infrared thermography analysis

Ana Briga-Sá, Christiano Fernandes and Tiago Pinto
Feasibility of pine bark as an aggregate in lightweight cement-based building materials

Sérgio Patrício and Marisa Dinis
Quality control of the asphalt core construction of the Mogliçë Dam, Albania

11:30 – 13:00 Room 8.8

Thematic Session
Building Materials & Construction Management
Chair: Luís Bernardo

Cristiana Gonilho-Pereira, Júlia Deloroso and Andrea M. Betioli
Performance assessment of mortars produced with sand from fluidized bed of biomass burning plants

Manuel Pinto, António Oliveira and Sérgio Sanches
BIM-FM Methodology Applied to a University Building

Alcinia Zita Sampaio, Augusto Gomes and Vitor Fernandes
Multidiscipline coordination supported on BIM: modelling and quantification

Alcinia Zita Sampaio, Augusto Gomes and Nuno Gomes
4D BIM model: consistency verification and construction planning

11:30 – 13:00 Room 8.10

Special Session
RE Architecture: Digital Stage Scenography Installations
Chair: Inês Campos

Daniel Barba Rodríguez

Estrategias proyectuales en la escenografía digital de La Fura dels Baus

Eusebio Alonso and Javier Blanco

Arquitecturas Avanzadas y Sistemas Multimedia

Javier Arias

The spectator and the artist: Reflections about the scenic space in OMA

Fernando Zaparain

Earlier digital scenographic installations

Jorge Ramos Jular and Fernando Zaparaín Hernández

Re-architectures: DIGITALSTAGE scenography installations

Pablo Llamazares Blanco

Digital scenographies as immersive environments. An approach to the work of Es Devlin

Miriam Ruiz Íñigo

YAYOI KUSAMA'S INFINITY ROOMS, GRADE ZERO OF DIGITAL SCENOGRAPHY

15:00 – 17:30– SPAGHETTI BRIDGE CONTEST – Auditorium 8.1

www.pontes-de-esparguete.ubi.pt



Concurso Humberto Santos

Pontes de Esparguete 2022



30 de novembro de 2022 | 15 horas

Faculdade de Engenharia | Anfiteatro 8.01

Categorias a concurso: Resistência / Estética

Regulamento e informações adicionais: www.pontes-de-esparguete.ubi.pt

Apoios / Patrocínios



Departamento de
Engenharia Electromecânica

ICE
UBI22



November 28 29 30
University of Beira Interior
Faculty of Engineering Covilhã :: Portugal

ICE
UBI
22

International
Congress on Engineering
Innovation and Sustainability Praxis



INSTITUTIONAL SUPPORT



ORDEM
DOS
ENGENHEIRO



SPONSORS

