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A VISION FOR THE FUTURE

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“A Vision for the Future”

Congreso Internacional de Engenharia
Universidade da Beira Interior
“Una visión para el futuro”

Congresso Internacional de Engenharia
Universidade da Beira Interior
“Uma Visão para o Futuro”

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UNIVERSIDADE DA BEIRA INTERIOR
FACULDADE DE ENGENHARIA DA UNIVERSIDADE DA BEIRA INTERIOR
CALÇADA DA FONTE DO LAMEIRO
6200-358 COVILHÃ | PORTUGAL

Tel: +351 275 242 059
E-mail: iceubi2017@ubi.pt
<http://iceubi.ubi.pt>

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→ ICEUBI 2017

International Conference on Engineering University of Beira Interior - A Vision for the Future

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— PREFACE

PREÂMBULO

Desejamos as boas-vindas ao ICEUBI2017 - International Congress on Engineering - A Vision for the Future, promovida pela Faculdade de Engenharia da Universidade da Beira Interior, e Covilhã, Portugal, com o patrocínio da Reitoria da Universidade da Beira Interior e o apoio institucional da Ordem dos Engenheiros de Portugal e da Câmara Municipal da Covilhã.

Esta edição vem na sequência do sucesso de oito anteriores Conferências de Engenharia realizadas na FEUBI com periodicidade bienal que se constituíram como uma organização de referência no domínio da Engenharia em Portugal.

Este congresso tem por objetivo principal divulgar a contribuição e interesse da Engenharia para a sociedade e fazer uma antevisão do nosso futuro comum. Ao mesmo tempo pretende-se fomentar o contacto entre investigadores e profissionais de diferentes áreas de Engenharia, possibilitar a divulgação das suas atividades de investigação, de inovação e desenvolvimento, junto dos vários sectores de atividade económica e também servir de divulgação ao trabalho de investigação e desenvolvimento que é realizado no seio da FEUBI.

Pretendia-se nesta edição 2017 consolidar a internacionalização e elevar o seu patamar de qualidade, recebendo contribuições de diferentes especialistas e promovendo o debate sobre a visão futura para a Engenharia. Todos os artigos foram submetidos na plataforma informática criada para o efeito, sendo revistos por 2 elementos da comissão científica no sistema “blind review”, tornando o processo de revisão mais transparente, cuidado e exigente. Os artigos melhor classificados pelos revisores científicos serão escolhidos para publicação nas revistas científicas associadas ao Congresso: Open Engineering, Case Studies on Transport Policy e Millenium - Journal of Education, Technology, and Health.

Esta edição da ICEUBI2017 contempla 4 palestras convidadas e 38 sessões paralelas relativas a 30 sessões temáticas propostas e outros tópicos científicos de interesse disponibilizados para a submissão de artigos, que contemplam todas as áreas de engenharia e que incluem, por exemplo, aeronáutica, civil, eletromecânica, informática e têxtil, arquitetura, urbanismo e gestão. Foram submetidos 194 artigos e aprovados 168 artigos completos de autores portugueses (10 universidades e 7 institutos politécnicos), do Brasil (12 universidades), Argélia (5 universidades), (Polónia (4 universidades), Espanha (5 universidades), Turquia (2), Moçambique, Austrália, Hungria e França. Participam ainda autores de 14 centros de investigação.

➤ INTRODUCTION

ICEUBI2017 aims to promote the contribution and concern of Engineering for human society, and make a preview of our common future, ensuring contact between researchers and practitioners from different fields of engineering and permit the dissemination of its research, innovation and development within the various sectors of economic activity.

This event comes in the sequence of the successful “ICEUBI2015” (iceubi2015.ubi.pt), which included in its program 3 invited lectures and 40 parallel sessions of 23 thematic sessions where 220 complete papers and posters were presented. For the first time a set of articles were published in a Special Issue of Open Engineering magazine.

➤ OBJECTIVES

Conceived as a forum for discussion, the event aims to:

- Promote the contribution of Engineering for Society;
- Ensure the contact between researchers and practitioners from different fields of engineering;
- Permit the dissemination of the activities of research, innovation and development within the various sectors of economic activity.

➤ THEMATIC SESSIONS PROPOSED

TS1 - Emerging Geomaterials and Construction Ecology
TS2 - Fire Engineering and Natural Disasters
TS3 - Off-site Construction-Challenges and Trends
TS4 - Innovative structural materials
TS5 - Rehabilitation of buildings and satisfaction of contemporary requirements
TS6 - Structural Engineering, Dynamics and Control
TS7 - Food Science and Engineering
TS8 - Geographic Information Systems Applied to Engineering
TS9 - Transport Infrastructures
TS10 - Geographic Engineering, Geodesy and Topography
TS11 - Sustainable materials and building technologies
TS12 - Materials, to serve the smart building
TS13 - Materials and health
TS14 - Nonlinear Filtering and Control of Uncertain Systems
TS15 - Air Transport
TS16 - Fibrous Materials
TS17 - RE-Architectures
TS18 - Trends and technologies in agriculture and agroindustry

TS19 - Traditional domestic spaces: new perspectives for its actualization
TS20 - Teaching research and architectural practice
TS21 - Postgraduate Teaching: Dissertation vs. Project
TS22 - Public Art and Urban Development: an Interdisciplinary Perspective in Time and Space
TS23 - Integration and management of energy and water systems - See more
TS24-Cities, Intersectionality and Participation: Other ways of doing it?
TS25-Challenges in urban landscape and public space
TS26-POLIS Projects: Territorial, urban, architectonic, constructive, and technological impacts, after Expo98
TS27-Thinking Architecture: Structure and Composition as protagonists
TS28-Propulsion System
TS29-Impressions in the Territory: risks, development, culture and tourism in architecture and engineering
TS30-Indoor Environmental Quality

→ CONFERENCE TOPICS

CT1 - Aero and Hydrodynamics
CT2 - Aeronautics and Astronautics
CT3 - Agronomic and Forestry
CT4 - Architecture, Design and Urban Planning
CT5 - Bioengineering and Biotechnology
CT6 - Chemistry
CT7 - Computer Science
CT8 - Construction
CT9 - Electrotecnics and Electronics
CT10 - Energy
CT11 - Environment
CT12 - Geotechnics, Geologies and Mining
CT13 - Industrial Management, Production and Maintenance
CT14 - Instrumentation, Automation and Control
CT15 - Materials
CT16 - Mathematical Methods in Engineering
CT17 - Mobility and Transportation
CT18 - Naval
CT19 - Physics
CT20 - Rehabilitation and Sustainability
CT21 - Space Systems and Geographic Information
CT22 - Structures
CT23 - Teaching Engineering
CT24 - Technological Innovation and Product Development
CT25 - Technological Design



CT26 - Telecommunications
CT27 - Textile
CT28 - Transport Phenomena
CT29 - Other Engineering Topics

➔ PREVIOUS ICEUBI

This event comes in the sequence of the successful “ICEUBI2015” (iceubi2015.ubi.pt), “ICEUBI2013” (iceubi2013.ubi.pt) and “ICEUBI2011” (iceubi2011.ubi.pt).

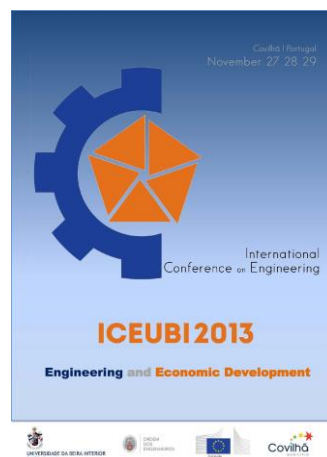


Figura 1 -Quadro da Sala dos Conselhos FEUBI

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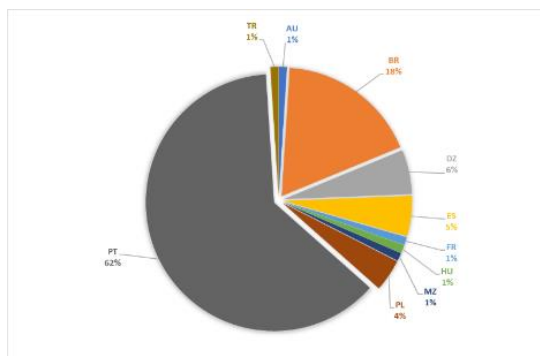


ICEUBI 2017 STATISTICS

A total of 194 papers were submitted to ICEUBI2017.



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Removal of Cr, Cu and Zn from liquid effluents using the fine component of granitic residual soils

Remoção de Cr, Cu e Zn de efluentes líquidos utilizando a componente fina de solos residuais graníticos

Flora Silva - flora@ipb.pt

School of Technology and Management, Polytechnic Institute of Bragança, Campus de Santa Apolónia, 5300-253 Bragança

Antonio Albuquerque - antonio.albuquerque@ubi.pt

Department of Civil Engineering and Architecture, University of Beira Interior and FibEnTech, Calçada Fonte do Lameiro, 6201-001 Covilhã

Victor Cavaleiro - victorc@ubi.pt

Department of Civil Engineering and Architecture, University of Beira Interior and FibEnTech, Calçada Fonte do Lameiro, 6201-001 Covilhã

Paulo Scalize - pscalize.ufg@gmail.com

School of Civil and Environmental Engineering, University Federal of Goiás, Av. Universitária, 1488, Setor Universitário, CEP 74605-220, Goiânia-GO

Abstract

The practice of reuse of treated wastewater (TWW) is seen as a strategy for water conservation in regions where water scarcity is a natural reality and in those where population growth and/or climate change foresee this scarcity. In situations of lower water scarcity, reuse is practiced by imperatives of environmental protection of the receiving media, reducing the discharge of effluents from wastewater treatment plants (WWTP). The artificial recharge of aquifers (RAQ) with TWW is a very common practice at the international level, but little considered in Portugal. However, residual waste from TWW (e.g. heavy metals), when deposited in soil or water, can cause significant environmental impacts on its uses, and cause serious health problems in several animal species due to their bioaccumulation in food chains. The present study intends to show that the granitic residual soils of the Quinta de Gonçalo Martins (Guarda), in the Beira Interior region of Portugal, present physical-chemical and mineralogical characteristics favorable to the infiltration of TWW into RAQ. The results of the batch sorption tests indicate that the soil has a reactive capacity to remove the Cu and Zn residual load at TWW at high efficiencies by adsorption and ion exchange mechanisms. The pseudo-first order model explained the reaction kinetics for the three heavy metals removal and when the sorption equilibrium state was reached, the removal of these metals was explained by the Freundlich isotherm.

Keywords

Residual soils; heavy metals; sorption