

# International Conference

TECHNOLOGICAL SHOW | NETWORKING

**1 1-13 SEPTEMBER 2019**

**POLYTECHNIC INSTITUTE PORTALEGRE**

**BIOENERGY**  
**IN PORTUGAL**



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**[ THEOREM ]**  
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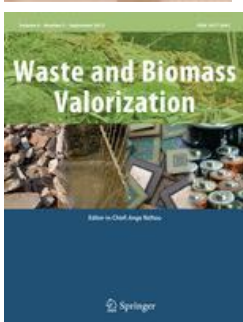
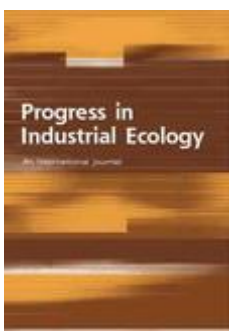
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## SCIENTIFIC PROGRAMME

### Oral communications

(15 minutes for presentation + 5 minutes for questions)

### Wednesday, 11th September 2019

<b>8:30-17:00</b>	Registration
<b>9:00-9:15</b> <b>AUDITORIUM</b>	Opening session: Introduced by the organising committee
<b>9:15-10:15</b> <b>AUDITORIUM</b>	<b>Opening Keynote by</b> Prof. Francisco Gírio Head of the Bioenergy Unit of LNEG (Energy and Geology National Institute) responsible for CoLab ProBiorefinery, Portugal
<b>10:15-11:15</b> <b>ROOM 1</b>	<p><b>Oral communications I</b></p> <p><b>LCA streetlight study for circular economic to local scale</b> <b>Manuel Jesus Hermoso-Orzáez</b>, Jose Adolfo Lozano-Miralles, Paulo Brito University of Jaén, Spain</p> <p><b>Bio-hythane and bio-methane production from dairy wastewaters: a study to understand the role of operational constraints on their energetic and environmental footprint</b> <b>Roberto Ramírez-Díaz</b>, Dorian Prato-Garcia Colombia National University, Colombia</p> <p><b>A free online tool to assess sugarcane straw electricity production in Brazil</b> <b>Marcos D. B. Watanabe</b>, Tassia L. Junqueira, Terezinha F. Cardoso, Isabelle L. Sampaio Brazilian, Mateus F. Chagas, Nariê R.D. Souza, Edvaldo R. Morais, Jessica M. Bressanin, Victor C. Geraldo, Thayse A. Hernandez, Manoel Regis L. V. Leal, Antonio Bonomi Brazilian Biorenewables National Laboratory (LNBR/CNPEM), Brazil</p>
<b>11:15-12:30</b>	Coffee Break & Poster session I. Visit to the technology exhibition.



<b>12:30-13:30</b>	<b>Networking and visit to Bioenergy Technology Exhibition</b>
<b>13:30 – 14:30</b>	<b>LUNCH</b>
<b>14:30 – 16:00 ROOM 1</b>	<p><b>Oral communications II (simultaneously with CIEEMAT2019)</b></p> <p><b>The Importance of Green Taxation for Sustainable Development: A Juridical-Economic Approach</b>  <b>Sara Sousa, Sofia Ligeiro</b>            Coimbra Business School/ISCAC &amp; CERNAS, Portugal and University of Salamanca, Spain</p> <p><b>Environmental criteria for valuation in the competitiveness of public tenders with large-scale led replacement in outdoor lighting of cities as a key element for sustainable development</b>  <b>Manuel Jesus Hermoso-Orzáez, Jose Adolfo Lozano-Miralles, Paulo Brito</b>            University of Jaén, Spain</p> <p><b>Influence of courtyard design on the effectiveness of a shading device</b>  <b>Carmen Galán-Marín, Victoria Patricia Lopez-Cabeza, Carlos Rivera-Gómez</b>            University of Seville, Spain</p> <p><b>Valorization of acidic waste oils through conversion to biodiesel catalysed by an acidic ionic liquid</b>  <b>Paulo Brito, Ana Bau, António Ribeiro, Ana Queiroz</b>            Mountain Research Centre (CIMO) – Bragança Polytechnic Institute, Portugal</p>
<b>14:00 - 16:00 ROOM 5</b>	<p><b>Session organised by AreanaTEJO: Regional Energy and Environment Agency from North Alentejo</b></p> <p><b>Workshop de internacionalização e formação do projeto BIOMASSTEP: Aplicação da Tecnologia Espectroscopia de Infravermelho Próximo (NIR) para análise da qualidade de biomassa em zonas transfronteiriças (Portuguese language only)</b></p>
<b>16:00 – 16:45 BioBip</b>	<b>Coffee Break &amp; Poster session II. Visit to the technology exhibition.</b>

<b>16:45 - 17:25</b> <b>ROOM 5</b>	<p><b>Session organised by AreanaTEJO: Regional Energy and Environment Agency from North Alentejo</b></p> <p><b>Workshop de internacionalização e formação do projeto BIOMASSTEP: Aplicação da Tecnologia Espectroscopia de Infravermelho Próximo (NIR) para análise da qualidade de biomassa em zonas transfronteiriças (Portuguese language only)</b></p>
<b>16:45 - 17:25</b> <b>ROOM 1</b>	<p><b>Oral communications III (simultaneously with CIEEMAT2019)</b></p> <p><b>Simultaneous saccharification and fermentation of soaking assisted thermal pretreated cassava peel waste: process modelling and optimisation</b>  <b>Gabriel Sanjo Aruwajoye</b>, Evariste Bosco Gueguim-Kana  School of Life Sciences, University of KwaZulu-Natal, South Africa</p> <p><b>Indicators of quality and sustainability in the logistics sector of organic products</b>  <b>Lais Alves</b>, Felipe Velihovetchi, Elaine Vazquez  CEFET/RJ, Brazil</p> <p><b>Transitional spaces as buildings thermal regulators. Adaptive comfort criteria</b>  <b>Eduardo M. Diz-Mellado</b>, Carmen Galán-Marín, Carlos Rivera-Gómez  University of Seville, Spain</p>
<b>17:30-19:30</b>	<p><b>Walking tour in Portalegre and welcoming reception</b></p>

## SCIENTIFIC PROGRAMME

### Oral communications

(15 minutes for presentation + 5 minutes for questions)

### Thursday, 12th September 2019

8:40-17:00	Registration
9:15-11:30 ROOM 1	<p><b>Oral communications IV</b></p> <p><b>Charting a Development Path to Deliver Global Microalgae Based Sustainable Fuel</b>  <b>John Roles</b>, Ben Hankamer, Jennifer Yarnold, Juliane Wolf, Evan Stephens, Karen Hussey  University of Queensland, Australia</p> <p><b>Flows Analysis and capacity for processing forest biomass in Portuguese mainland</b>  Jorge Cunha, Alexandra Marques  INESCTEC, Portugal</p> <p><b>Environmental sustainability assessment of a two-stage continuous process for the synthesis of hydrogen and electricity from renewable resources</b>  <b>Roberto Ramírez-Díaz</b>, Dorian Prato-Garcia  National University of Colombia, Colombia</p> <p><b>Microwave-assisted Hydrothermal Processing of Pine nut shells for OS production</b>  <b>Ivone Torrado</b>, Beatriz Neves, Maria C. Fernandes, Florbela Carvalheiro, Helena Pereira , Luís C. Duarte  Lneg, Cebal, Isa-CEF, Portugal</p>
11:30-12:30	Coffee Break & Poster session III. Visit to the technology exhibition.
12:30-13:30 ROOM 1	<p><b>Technical session: Valoriza – Research Centre for Endogenous Resource Valorization</b></p> <p><b>Gasification of chips and torrefied products obtained from forestry residues</b>  Abel Rodrigues, Paulo Brito, Luís Calado, Roberta Panízio, Nunes Leonel</p>

	<p>INIAV and VALORIZA, Portugal</p> <p><b>Degradation of organic matter from swine wastewater by electrooxidation: Taguchi optimization</b>  <b>Gonçalo Lourinho</b>, Paulo Brito, Luiz Rodrigues          VALORIZA - Research Centre for Endogenous Resource Valorization, Portugal</p> <p><b>An Econophysics study of the S&amp;P Global Clean Energy Index</b>  <b>Paulo Ferreira</b>          VALORIZA - Research Centre for Endogenous Resource Valorization, Portugal</p>
<b>13:30-14:30</b>	<b>LUNCH</b>
<b>14:30-16:00</b> <b>ROOM 1</b>	<p><b>Oral communications V</b>  <b>(Simultaneously with CIEEMAT2019)</b></p> <p><b>Carbon Cycle Assessment Via Global Ecological Human Dimension Modelling</b>  <b>Safwat H. Shakir Hanna</b>, Lealon I. Martin          Texas Gulf Coast Environmental Data (TEXGED) Center, Prairie View A&amp;M University, United States of America</p> <p><b>Optimization of reaction conditions for biodiesel synthesis from a waste cooking oil using [HMIM]HSO<sub>4</sub> ionic liquid as catalyst</b>  <b>Paulo Brito</b>, Higgor Goes, António Ribeiro, Ana Queiroz          Centro de Investigação de Montanha (CIMO) – Bragança Polytechnic Institute, Portugal</p> <p><b>Measurement of environmental efficiency in the countries of the European Union with the enhanced data envelopment. Analysis method (DEA) during the period 2005-2012</b>  <b>Manuel Jesus Hermoso-Orzáez</b>, Miriam García -Alguacil, Julio Terrados-Cepeda, Paulo Brito          University of Jaén, Spain</p> <p><b>Small scale power generation Unit using Biomass gasification: The SUBe Project</b></p>

	<p><b>Fernanda Resende</b>, Valter Silva, Miguel Mendonça, António Barbosa, Paulo, João Azevedo, Arlindo Almeida, Hélder Gomes UA, ESTGA, Portugal</p>
<p><b>14:00-16:00</b> <b>ROOM 5</b></p>	<p><b>Session organised by AreanaTEJO: Regional Energy and Environment Agency from North Alentejo (Portuguese language only)</b>            Conferência Final dos Projetos <b>STEPPING—Apoio à Implementação de Contratos de Performance de Energia e ENERJ—Ações Conjuntas para a Eficiência Energética</b></p>
<p><b>16:00 - 16:30</b> <b>BioBip</b></p>	<p>Coffee break &amp; Posters session IV. Visit to the Technology exhibition.</p>
<p><b>16:30 – 17:30</b> <b>ROOM 1</b></p>	<p><b>Oral communications VI (session in English)</b>  <b>(Simultaneously with CIEEMAT2019)</b></p> <p><b>Reduction of total phenols, total phosphorus and turbidity by uncatalytic oxidation processes in cheese whey wastewater</b>  <b>Ana R. Prazeres</b>, Silvana Luz, Flávia Fernandes, Eliana Jerónimo            CEBAL/ICAAM, Portugal</p> <p><b>The atrium thermal effect on energy behavior in buildings. An experimental case-study</b>  <b>José Antonio Romero-Odero</b>, Carmen Galán-Marín, Carlos Rivera-Gómez            University of Seville, Spain</p> <p><b>Simulation of a Billet Heating Furnace</b>  <b>Isabel Malico</b>, Sérgio Cavaleiro Costa, Daniel Santos, Miguel Barão, Teresa Gonçalves, Luís Rato, Paulo Canhoto, Pedro Lima, Sofia Oliveira, Paulo Fontes, Susana Cravo            University of Evora, Portugal</p>
<p><b>16:30 – 17:30</b> <b>ROOM 5</b></p>	<p>Continuation of session organised by AreanaTejo: <b>STEPPING—Apoio à Implementação de Contratos de Performance de Energia e ENERJ—Ações Conjuntas para a Eficiência Energética</b></p>

## SCIENTIFIC PROGRAMME

**Friday, 13th September 2019**

**7:30-14:00**

Visit to:  
A4F - Production of Microalgae (Póvoa de Santa Iria) and Energy Laboratory of LNEG - Energy and Geology National Institute (Lumiar, Lisbon). Transfer will take delegates back to Lisbon (delegates who wish to come back to Portalegre can get back on the bus of the organisation after the technical tour).

## POSTERS

**All posters are exhibited on the 11th and 12th September**

**Heavy metals removal and hydrocarbon degradation from petroleum wastewater by POA**

**Naima Ghemmit-Doulachem**, Ahmed Kacioui, Ayoub Mazli

University M'hamed Bougara de Boumredes, Fibrous Polymers Treatment and Forming Laboratory (LTMFP), Algeria

**Swine wastewater treatment by electrocoagulation using an experimental design methodology**

**Gonçalo Lourinho**, Paulo Brito, Luiz Rodrigues  
VALORIZA - Research Center for Endogenous Resource Valorization, Portugal

**Numerical simulation of volatile organic compounds during condensation in a vertical tube**

**Kaoutar Zine-Dine**, Youness El Hammami, Sara Armou, Rachid Mir, Touria Mediouni  
National School of Applied Sciences, Morocco

**Autohydrolysis of Lignocellulosic Biomass Under Diverse Operation Regimes**

**Filomena Pinto**, Luís Duarte, Cristina Oliveira, Joana Marques, Paula Costa, Rui André, Florbela Carvalheiro, Bruno Sampaio, Diogo Vicente

LNEG - Energy and Geology National Institute,  
Portugal

**Biodigestion of cork boiling wastewater:  
recovery of phenolic compounds**

**Francisco Javier Yuste Córdoba**, Belén Godoy  
Cancho CICYTEX/ICMC, Spain

**Cereals and olive tree cultivations as major  
sources of bioenergy for Alentejo**

Abel Rodrigues, Benvindo Maças, Paulo Brito,  
Alexandre Gonçalves, Ana Paz  
INIAV, Portugal

**Preliminary studies on landfill leachate  
remediation with microalgae**

**Catarina Nobre**, Cândida Vilarinho, Margarida  
Gonçalves  
MEtRICs, Portugal

**Gasification of municipal and construction and  
demolition wastes with different polymeric  
fractions**

**Octávio Alves**, Jeysa Passos, Luís Calado, Roberta  
Panizio, Margarida Gonçalves , Eliseu Monteiro,  
Paulo Brito  
VALORIZA - Research Center for Endogenous  
Resource Valorization, Portugal

**Comparative study of electrochemical behavior  
of anticorrosion coating based on a conductive  
polymeres polyaniline/lignine and inorganic  
charge**

**Bouchelaghem-Boudieb Naima**, Bounoughaz  
Moussa, Hammidouche Fahim, Ghebache Zahra  
University M'hamed Bougara de Boumrdes,  
Fibrous Polymers Treatment and Forming  
Laboratory (LTMFP), Algeria

**Evaluation of the biomass from Opuntia species  
and of the corresponding biochars as low-cost  
adsorbents for methylene blue**

**Liliana Serrano**, Catarina Nobre, Margarida  
Gonçalves METRICS , Portugal

**Gasification of hydrolysed olive cake.  
Preliminarily experimental tests in a laboratory-  
scale bed reactor**

**Gabriel Blázquez,** Ángela Gálvez-Pérez,  
Antonio Pérez, M<sup>a</sup> Ángeles Martín-Lara, Mónica  
Calero  
University of Granada, Spain

**Application of biotechnology techniques in  
micropropagation in olive trees**  
**Ana Cordeiro, Mariana Paulo**  
Polytechnic Institute of Portalegre, Portugal

**Hydrothermal pre-treatment of green pepper  
wastes to improve their used as alternative  
substrate in ethanol production**  
**Gabriel Blázquez,** Lucía Chica-Redecillas, Antonio  
Pérez, Mónica Calero, M<sup>a</sup> Ángeles Martín-Lara  
University of Granada, Spain

**Biomass Co-Pyrolysis with Plastic Wastes versus  
Biomass Pre-treatment before Pyrolysis**  
**Filomena Pinto,** Luís Duarte, Filipe Paradela,  
Joana Marques, Paula Costa, Rui André,  
Florbela Carvalheiro  
LNEG - Energy and Geology National Institute,  
Portugal

**Economic evaluation of the feasibility of  
installing a biogas plant for the treatment of  
slaughterhouse waste**  
**Ilda Cristina Gato,** Roberta Mota Panizio, Luís  
Filipe do Carmo Calado, Paulo Sérgio Duque  
Brito  
VALORIZA - Research Centre for Endogenous  
Resource Valorization, Portugal

**Use of families of Euphorbiaceae for the  
production of biodiesel in semi-arid areas**  
**Noé Anes García,** Antonio Luis Marqués Sierra  
University of Oviedo, Spain

**Charcoal production infrastructure in Portalegre  
district (Portugal): first assessment from satellite  
imagery and field observations**  
**Felipe Thalles Moreira Silva,** Luís Tarelho, José  
Silva, Manuel Matos, David Silva, Daniel Neves  
Department of Environment and Planning and  
Centre for Environmental and Marine Studies  
(CESAM), Portugal



**Effect of the incorporation of biomass in the carbonization of waste electrical and electronic equipment**

**Roberta Mota Panizio**, Luís Filipe Carmo Calado, Octávio Alves, Santa Margarida Santos, Paulo Sérgio Duque de Brito, José Luz Silveira, Catarina Nobre, Maria Margarida Gonçalves  
VALORIZA - Research Centre for Endogenous Resource Valorization, Portugal

**Study of divergences between modelling and site works applied to geosynthetics road uses**

**Miguel Candel**, Pablo Roldán Oliden, Carmen Calvo Jurado, University of Extremadura, Spain

**The contribution of biomass for energy efficiency in greenhouse**

João Rafael Galvão, Hélio Correia, Pedro Amaro, Adelino Santos Nabais  
Leiria Polytechnic Institute, Portugal

**Use of waste generated during the manufacture of bioplastics from sewage sludge**

**Noé Anes García**, Francisco Blanco Alvarez, Antonio Luis Marqués Sierra  
University of Oviedo, Spain

**Fractionation of pyrolysis bio-oils by hydrothermal torrefaction and simultaneous distillation**

**L. Durão**, M. Gonçalves, A. P. Oliveira, C. Nobre, B. Mendes  
MEtRICs, Department of Science and Technology of Biomass, FCT-NOVA, and VALORIZA, Portugal

**Production of biochar from lignocellulosic and lipid waste mixtures: Statistical optimization using response surface methodology**

Santa Margarida Santos Santos, Catarina Nobre, Ricardo Correia, Paulo Brito, Margarida Gonçalves  
VALORIZA- Research Centre for Endogenous Resource Valorization, and MEtRICs, Portugal

**Reinforcement of pavements with geosynthetics. Estimation of effective elastic properties**

**Carmen Calvo Jurado**, Pablo Roldán Oliden, Miguel Candel, University of Extremadura, Spain



**Energy valorization of sewage sludge through drying and thermal gasification: an economic perspective**

**Luís Filipe Carmo Calado**, Roberta Mota Panizio, Gonçalo Lourinho, Octávio Alves, Ilda Gato, Paulo Sérgio Duque de Brito

VALORIZA- Research Centre for Endogenous Resource Valorization, and MEtRiCs, Portugal



# BIOENERGY IN PORTUGAL



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