



## SCIENTIFIC PROGRAMME

<b>Wednesday, 25th of July 2018</b>	
13:30-17:30	<b>Registration</b>
15:00-18:00	<p style="text-align: center;"><b>Session I.I Room A.1</b> <b>Session organised by Fundación Asturiana de la Energia</b></p> <p style="text-align: center;"><b>“Harnessing energy in operating water networks”</b></p> <p>Welcome and introduction of the session. Representative of Fundación Asturiana de la Energía.</p> <p><b>Microhidroelectric technologies for water networks. Pumps as turbines (PATs).</b> Speaker TBC</p> <p><b>Fostering renewable energies and energy efficiency in the water sector using PATs and wheels</b> Helena Margarida Machado da Silva Ramos Instituto Superior Tecnico (IST) – University of Lisbon, Portugal</p> <p><b>Solutions in drinking water networks. Lifehygenet project</b> Daniel Álvarez Díaz Research Centre Prodintec, Spain</p> <p><b>Solutions in irrigation systems</b> Jorge García Morillo University of Cordoba, Spain</p> <p><b>Solutions in industrial uses. Sinfinenergy project</b> Jose Luis Suarez Sierra University of Oviedo and CEO Grupo Tactica, Spain</p> <p>17:45 – 18:00 Discussion</p>
15:00-17:00	<p style="text-align: center;"><b>Session I.II Room A.2</b> <b>Sustainable Energy</b></p> <p><b>Torrefaction of Short Rotation Coppice of Popla under oxidative and non-oxidative atmospheres</b> Consuelo Pizarro, Ana Álvarez, Gemma Gutiérrez, María Matos, Julio L. Bueno University of Oviedo, Spain</p> <p><b>Experimental study of explosive intervals of ternary gas mixtures</b> Isabel Ámez Arenillas, Javier García Torrent, Blanca Castells Somoza, Liliana Medic Pejic Polytechnic University of Madrid, Spain</p>



	<p><b>Net Zero Energy for Industrial and Commercial Microgrids: Approaches and Challenges</b> Filipe Bandejas, Mario Gomes, Paulo Coelho, José Fernandes Polytechnic Institute of Tomar, Portugal</p> <p><b>Impact of multiple parameters on energy performance of PV-DSF buildings</b> Elin Markarian, Farivar Fazelpour, Nima Soltani, Sepideh Farahi Islamic Azad University, Iran</p>
18:00-20:00	Welcoming reception

<b>Thursday, 26th July 2018</b>	
9:00-9:30	Registration
9:30-10:00	<p>Opening session by:</p> <p>Santiago García Granda, Principal of the University of Oviedo Isaac Pola Alonso, Minister of Employment, Industry and Tourism. Government of the Principality of Asturias Aníbal José Vázquez Fernández, Mayor of Mieres Asun Cámara Obregón, dean of the Polytechnic School of Mieres Eduardo Alvarez Alvarez, Co-chairman of the conference Manuel Rico Secades, Co-chairman of the conference</p>
10:00-11:40	<p style="text-align: center;"><b>Oral communications II.I Room A.1 Sustainable Energy</b></p> <p><b>Syngas quality as a key factor in designing of energy-efficient scrap tyres pyrolysis plant</b> Dina Czajczyńska, Renata Krzyżyńska, Hussam Jouhara Wroclaw University of Science and Technology, Poland</p> <p><b>NPSH experimental data for two centrifugal pumps</b> M. Santoyo de la Fuente, J.González, C. Miguel González, R. Barrio Perotti, E. Reynaud University of Oviedo, Spain</p> <p><b>Techno-economic assessment of BIPV systems in three cities of Iran</b> Niloufar Ziasistani, Farivar Fazelpour, Parsa Nazari, Pouria Nazari, Nastaran Ziasistani Islamic Azad University, Iran</p> <p><b>Small-Scale Hydropower Generation in Water Distribution Networks by using Pumps as Turbines</b> Francesco Pugliese, Francesco De Paola, Nicola Fontana, Gustavo Marini, Maurizio Giugni University of Naples, Italy</p>



	<p><b>Analysis of new strategies to reach nearly Zero Energy Buildings (nZEBs)</b> Jose Maria Santos-Herrero, Jose Manuel Lopez-Guede, Ivan Flores University of the Basque Country (UPV/EHU), Spain</p>
10:00-11:40	<p style="text-align: center;"><b>Oral communications II.II Room A.2 Engineering and Materials</b></p> <p><b>Multifunctional Porous Concrete Urban Pavements for a more Sustainable and Resilient Future</b> Eduardo Javier Elizondo Martínez, Valerio Carlos Andrés Valeri, Luis Juli Gándara, Jorge Rodríguez Hernández University of Cantabria, Spain</p> <p><b>The effect of the addition of Y<sub>2</sub>O<sub>3</sub> on the microstructure of polycrystalline alumina ceramics</b> Serkan Abali, Cem Uğur Karaçam Çanakkale Onsekiz Mart University, Turkey</p> <p><b>Structural Properties Ni<sub>20</sub>Cr<sub>10</sub>Al<sub>2</sub>Y Coatings for Geothermal Conditions</b> Aurelian Buzaiianu, Petra Motoiu, Ioana Csaki, Anghel Ioncea, Vlad Motoiu METAV R&amp;D, Romania</p> <p><b>Sodium cobaltate for different energy-environmental applications</b> Elizabeth Vera, J. Francisco Gómez García, Heriberto Pfeiffer IIM UNAM, Mexico</p> <p><b>A study on hydrogen embrittlement of 42CrMo4 structural steel used in the manufacturing of pipes and vessels containing high pressure hydrogen gas</b> A. Zafra, L.B. Peral, C. Rodríguez, F.J. Belzunce University of Oviedo, Spain</p>
10:00-11:40	<p style="text-align: center;"><b>Oral communications II.III Room A.3 Environment</b></p> <p><b>Environmental impacts of secondary batteries for grid storage and the relevance of recyclability within</b> Jens Peters, Manuel Baumann, Marcel Weil Helmholtz Institute Ulm (HIU), Germany</p> <p><b>The impact of hot metal temperature on CO<sub>2</sub> emissions from BOF steelmaking</b> José Díaz, F. Javier Fernández University of Oviedo, Spain</p> <p><b>Safety Preventive Maintenance for Earth Moving Equipment</b> Natalia Vázquez Viñuela, Juan Casín Loya, Isabel Ámez Arenillas, Blanca Castells Somoza LOM (Technical University of Madrid), Spain</p>



	<p><b>The use of thermal water vapor arc plasma as oily soil remediation technique</b> Dovilė Gimžauskaitė, Andrius Tamošiūnas, Simona Tučkutė, Vilma Snapkauskienė, Mindaugas Aikas, Rolandas Uscila Lithuanian Energy Institute, Lithuania</p> <p><b>Estimation of the size of the battery for hybrid electric busses using quasi-static backward modelling</b> A. S. Tomar, P. A. Veenhuizen, L. Buning, B. Pyman HAN University of Applied Sciences, Netherlands</p>
11:40-12:40	Coffee-break & Poster session I
12:40-14:40	<p style="text-align: center;"><b>Oral communications III.I Room A.1</b> <b>Sustainable Energy</b></p> <p><b>An overview of rare earth elements in sewage sludges and their ashes</b> M. Belén Folgueras Díaz, Manuela Alonso Hidalgo, Juan Ramón Folgueras Díaz, Susana Lage Cal University of Oviedo, Spain</p> <p><b>Gurney flap implementation on a DU91W250 airfoil</b> Iñigo Aramendia, Aitor Saenz-Aguirre, Unai Fernandez-Gamiz, Ekaitz Zulueta, Jose Manuel Lopez-Guede, Ana Boyano, Javier Sancho University of the Basque Country UPV/EHU, Spain</p> <p><b>Thermal and Hygric Inertia and its Effects on Indoor Air Condition in a Traditional Asturian House: A Field Study</b> Susana Lage-Cal, María-Belén Folgueras-Díaz, Juan-Carlos Luengo-García University of Oviedo, Spain</p> <p><b>Techno-economic viability of solar PhotoVoltaic-based mini-grids for rural communities in Guatemala</b> Krystel Araneda, María Belén Folgueras Díaz, Susana Lage University of Oviedo, Spain</p> <p><b>Control and Monitoring System for Hydraulic Microturbines Test Benches</b> Mario Álvarez Fernández, Samuel Camba Fernández, Aitor Fernández Jiménez, Manuel Rico Secades, Antonio Javier Calleja Rodríguez Gijón Polytechnic School of Engineering, Spain</p> <p><b>A comparative study on evaluating sewage sludge compost for establishing woody energy crops in disused land in Asturias, Spain</b> Maria Castaño Díaz, Elias Afif Khouri, Marcos Barrio Anta, Ruben Sakrabani, Jose Manuel González Lafuente, M<sup>a</sup> Teresa Mallada Decastro, Jose Luis Viesca Rodriguez, Asunción Camara Obregon University of Oviedo, Spain</p>
12:40-14:40	<b>Oral communications III.II Room A.2</b>



	<p style="text-align: center;"><b>Engineering and Materials</b></p> <p><b>Finite element analysis of cross laminated timber (CLT) as a composite material</b> Juan Enrique Martinez-Martinez, Mar Alonso-Martinez, Felipe Pedro Álvarez Rabanal, Juan José del Coz-Díaz University of Oviedo, Spain</p> <p><b>Application of material flow analysis (MFA) in electronic waste (E-waste) management: A review</b> Md Tasbirul Islam, Nazmul Huda Macquarie University, Australia</p> <p><b>Wiping systems: influence of the surface tension in water film rupture</b> Celia Miguel Gonzalez, Manuel Garcia Diaz, Bruno Pereiras García University of Oviedo, Spain</p> <p><b>Experimental investigation of the acoustic scattering matrix for a centrifugal pump</b> Guidong Li, Jorge Luis Parrondo Gayo University of Oviedo, Spain</p> <p><b>Transverse distribution of concentrated loads on timber composite floors</b> Sandra Monteiro, Alfredo Dias, Sérgio Lopes DEC-FCTUC, Portugal</p> <p><b>Karst Detection, Prevention and Correction: A Case Study along the Riyadh Metro Line 3 (Saudi Arabia)</b> Manuel Cueto, Pablo de la Puente, Carlos López-Fernández, Luis Pando, Daniel Arias IDOM and University of Oviedo, Spain</p>
12:40-14:40	<p style="text-align: center;"><b>Oral communications III.III Room A.3 Environment</b></p> <p><b>Fluid-dynamic study of the Avilés Port. Remedial measures on the environmental impact of the exterior storage of powdery products</b> M. Armindo Guerrero, Rubén Cordero, Julio Jorge, Francisco Vigil ITMA Foundation, Spain</p> <p><b>Environmental forensic study and remediation feasibility in an abandoned industrial site</b> Diego Baragaño, Eduardo Rodríguez-Valdés, Ana Isabel Peláez, Carlos Boente, Nora Matanzas, Nerea García, José Luis Rodríguez Gallego University of Oviedo, Spain</p> <p><b>Computational tools for analysing air pollutants dispersion: a comparative review</b></p>



	<p>Miguel Ángel Fernández Fernández, Elena Antuña Yudego, Juan Luis Carús Candás, Alberto Fernández Villán, Eduardo Álvarez Álvarez, María José Suárez López, Laura García Expósito, Víctor Manuel Fernández Pacheco TSK, Spain</p> <p><b>Analysis of drying of brewers' spent grain</b> José Ignacio Arranz, María Teresa Miranda, Francisco José Sepúlveda, Irene Montero, Carmen Victoria Rojas University of Extremadura, Spain</p> <p><b>Methodology for the generation of hydropedological parameters associated with edaphic GIS coverage and databases for hydrological modeling</b> Antonio Luis Marques Sierra, Nieves Roqueñí Gutiérrez, Jorge Loredó Perez University of Oviedo, Spain</p> <p><b>Methodology for the study of the air dispersion of the industrial contaminants taking into account the orography</b> Maria Jose Suarez Lopez, Laura Garcia Exposito, Eduardo Blanco Marigorta, Eduardo Alvarez Alvarez, Antonio Navarro Manso, Victor Manuel Fernandez Pacheco, Elena Antuña Yudego, Juan Luis Carus Candas University of Oviedo, Spain</p>
14:40-16:00	Lunch
16:00-18:00	<p style="text-align: center;"><b>Oral communications IV.I Room A.1</b> <b>Sustainable Energy</b></p> <p><b>5 MW wind turbine annual energy production improvement by flow control devices</b> Aitor Saenz-Aguirre, Sergio Fernandez-Resines, Iñigo Aramendia, Unai Fernandez-Gamiz, Ekaitz Zulueta, Jose Manuel Lopez-Guede, Javier Sancho University of the Basque Country UPV/EHU, Spain</p> <p><b>Thermal performance of wet swales designed as multifunctional green infrastructure systems for water management and energy saving</b> Valerio C. Andrés-Valeri, Luis A. Sañudo-Fontaneda, Carlos Rey-Mahía, Stephen J. Coupe, Felipe P. Álvarez-Rabanal Austral University of Chile, Chile</p> <p><b>Conjugated heat transfer analysis in a host rock –drift system at Deep underground mines</b> Eva Martínez García, Agus Pullung Sasmito Polytechnic School of Mieres, Spain</p> <p><b>Proposal of an optimized airfoil geometry for vertical-axis wind turbine applications</b> Andrés Meana-Fernández, Lorena Díaz-Artos, Jesús Manuel Fernández Oro University of Oviedo, Spain</p>



	<p><b>Improved Design of Axial Flux PM Generator used in Rim Driven Marine Current Turbines</b> Abolfazl Vahedi, Mohammad Bapiri, Omid Dorri University of Science &amp; Technology, Iran</p>
16:00-18:00	<p style="text-align: center;"><b>Oral communications IV.II Room A.2 Engineering and Materials</b></p> <p><b>Towards a better understanding of hydrogen trapping and diffusion on 42CrMo4 quenched and tempered steel by means of hydrogen permeation technique</b> A. Zafra, L.B. Peral, Inés Fernández-Pariente, F.J. Belzunce University of Oviedo, Spain</p> <p><b>Indoor Air Quality Monitoring Sensor for the Web of Things</b> Daniel Ibaseta, Julio Molleda, Fidel Díez, Rubén Usamentiaga University of Oviedo, Spain</p> <p><b>Evaluation of fatigue crack growth rate and fracture toughness of ferritic high strength steels under hydrogen environments</b> Luis Borja Peral, Alfredo Zafra, Javier Belzunce, Cristina Rodríguez University of Oviedo, Spain</p> <p><b>An Industry 4.0 approach for photovoltaic plants monitoring</b> Miguel Ángel Fernández Fernández, Juan Luis Carús Candás, Pablo Barredo Gil, Antonio Miranda de la Torre, Gabriel Díaz Orueta TSK, Spain</p> <p><b>Design and Numerical Simulation of a Wind Tunnel for the Civil and Environmental Engineering Department at Princeton University</b> Antonio Navarro-Manso, Eva Martínez García, Maria Moreyra Garlock, Mauricio Loyola Vergara University of Oviedo, Spain</p> <p><b>Energy saving potential of the residential house integrated with phase change materials in Mumbai, India</b> Madina Bimaganbetova, Shazim Ali Memon Nazarbayev University, Kazakhstan</p>
16:00-18:00	<p style="text-align: center;"><b>Oral communications IV.III Room A.3: Environment</b></p> <p><b>Detection of functional outliers in pollutant emissions from the Soto de Ribera coal-fired power plant: a case study in Northern Spain</b> Fernando Sanchez Lasheras, Fernando Celestino, Paulino José García Nieto, Esperanza García Gonzalo University of Oviedo, Spain</p> <p><b>Bioenergy as an Environmental Alternative in Energy Systems: a Case Study</b></p>



	<p>Carlos Ujados Lorenzo, José Pablo Paredes, Guillermo Laine, J. Xiberta University of Oviedo, Spain</p> <p><b>Estimation of PM10 Distribution using Landsat5 and Landsat8 Remote Sensing</b> VM. Fernández-Pacheco, CA. López-Sánchez, E. Álvarez-Álvarez, MJ. Suárez López, L. García-Expósito, E. Antuña Yudego, JL. Carús-Candás University of Oviedo, Spain</p> <p><b>Application of CFD methodology: Pollutant gases dispersion in an industrial environment</b> Laura García, María José Suarez, Eduardo Blanco, Eduardo Alvarez, Antonio Navarro, Victor Pacheco, Elena Antuña, Juan Luís Carús-Candás</p> <p><b>Degradation of sulfaquinoxaline sodium by sulfate radical-based oxidation process under UV-C irradiations: kinetic degradation, pH and radicals effect</b> Lilya Boudriche, Zahra Safaei, Deepika Ramasamy, Mika Sillanpää, Amel Boudjemaa CRAPC research center, Algeria</p> <p><b>Analysis of some energy management strategies in a residential grid-connected photovoltaic plus storage system</b> Angel A. Bayod-Rújula, Amaya Martínez-Gracia University of Zaragoza, Spain</p>
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<b>Friday, 27th of July 2018</b>	
9:00-9:30	Registration
9:30-11:00	<p style="text-align: center;"><b>Oral communications V.I Room A1</b> <b>Sustainable Energy</b></p> <p><b>Automatic Analysis of the Hydrokinetic Potential for Water Flows in Free Surface</b> Andone Amezcua, Eduardo Álvarez Álvarez, Joaquín Fernández Francos University of Oviedo, Spain</p> <p><b>A computational study on the damping-amplitude dependence and estimation of the limit cycle oscillations for normal triangular arrays with one tube undergoing fluidelastic instability</b> Beatriz de Pedro, Guillermo Laine, Jorge Tufiño, Jorge Parrondo University of Oviedo, Spain</p> <p><b>Performance Curve of a Radial Flow Turbine for an OWC Plant</b> Mina Saad, Manuel García Díaz, Jesus Manuel Fernández Oro, Bruno Pereiras García, Jose González Pérez University of Oviedo, Spain</p>





	<p><b>Study of the architecture of a smart city</b> Jose Antonio Rodriguez, Francisco Javier Fernandez, Pablo Arboleya Gijon City Council, Spain</p> <p><b>A novel turbine for OWC wave energy converters</b> Manuel García Díaz, Adrian Salvado García, Celia Miguel González, Bruno Pereiras García University of Oviedo, Spain</p> <p><b>Towards the large-scale implementation of solar-assisted heat pumps. The case of a SAHP fed by photovoltaic-thermal collectors and including seasonal storage in an academic building</b> Amaya Martínez-Gracia, Alejandro Del Amo, Angel A. Bayod-Rújula, Javier Uche, Sergio Usón University of Zaragoza, Spain</p>
9:30-11:00	<p style="text-align: center;"><b>Oral communications V.II Room A2 Engineering and Materials</b></p> <p><b>Wet oxidation of non-biodegradable leachates in presence of iron and mixed oxides as heterogeneous catalysts</b> Paula Oulego, Sergio Collado, María de los Ángeles Villa-García, Mario Díaz University of Oviedo, Spain</p> <p><b>Sustainable buiding: high performance timber bridges</b> Julio Vivas, Juan Carlos Santos Media Madera Ingenieros, Spain</p> <p><b>Study of the cooling phase in an autoclave for the treatment of composites</b> Alvaro García, Jaime Arístegui, Rodolfo Espina, Antonio J. Gutiérrez-Trashorras, Eduardo Blanco University of Oviedo, Spain</p> <p><b>Hydrogen induced cracking of structural steels: Effect of the strain rate on the fracture behavior under pressure precharged samples</b> Guillermo Álvarez, Tomás Eduardo García, Cristina Rodríguez, Javier Belzunce University of Oviedo, Spain</p> <p><b>A study of the transverse flux with CFD modelling of the cross-flow through a parallel triangular tube array with one tube undergoing fluidelastic instability</b> Guillermo Laine Cuervo, Beatriz de Pedro, Jorge Tufiño, Jorge Parrondo University of Oviedo, Spain</p>
9:30-11:00	<p style="text-align: center;"><b>Oral communications V.III Room A3 Environment</b></p>



	<p><b>Assessment of potential recovery of materials from waste computers, laptops and mobile phones in Australia</b> Md Tasbirul Islam, Nazmul Huda Macquarie University, Australia</p> <p><b>Comparison between existing rankine cycle refrigeration systems and hygroscopic cycle technology (HCT)</b> Francisco Javier Rubio Serrano, Fernando Soto Pérez, Antonio J. Gutiérrez Trashorras, Guillermo Ausín Abad IMASA, Spain</p> <p><b>Offshore wind energy resource atlas of Asturias (N Spain)</b> Mario López, Noel Rodríguez University of Oviedo, Spain</p> <p><b>The wave energy converter CECO: current status and future perspectives</b> Mario López, Paulo Rosa-Santos, Francisco Taveira-Pinto, Claudio Alexis Rodríguez University of Oviedo, Spain</p>
11:00-12:00	Coffee Break & Poster session II
12:00-14:30	<p style="text-align: center;"><b>Oral communications VI.I Room A1</b> <b>Sustainable Energy</b></p> <p><b>Energy refurbishment assessment of an existing educational building. A case study</b> Maria Jose Suarez Lopez, Silvia Soutullo Castro, Maria Rosario Heras Celemin, Eduardo Blanco Marigorta University of Oviedo, Spain</p> <p><b>Assessment of offshore wind energy substructures: Current status and their feasibility at the Spanish waters</b> Guadalupe Torre, Carlos Costales, Marina Díaz, Noel Rodríguez University of Oviedo, Spain</p> <p><b>Aerodynamic design of a small-scale model of a vertical axis wind turbine</b> Andrés Meana-Fernández, Jesús Manuel Fernández Oro, Katia María Argüelles Díaz, Mónica Galdo-Vega, Sandra Velarde-Suárez University of Oviedo, Spain</p> <p><b>Energy optimization of Distribution Centers of the Dairy Industry of the Dominican Republic through photovoltaic installations and saving and efficiency measures</b> F Javier Alvarez, Jorge Xiberta University of Oviedo, Spain</p> <p><b>Integration of the Iberian natural gas infrastructure into the European energy transition to renewable sources</b></p>



	<p>Pablo Fernandez, Pablo Paredes, Jorge Xiberta University of Oviedo, Spain</p> <p><b>Influence of Attached Sunspaces on Indoor Thermal Comfort. The Case Study of a Traditional Asturian House</b> Susana Lage-Cal, María-Belén Folgueras-Díaz, Juan-Carlos Luengo-García University of Oviedo, Spain</p> <p><b>Modelling and simulation of a building energy hub</b> A. A. Bayod-Rújula, Y. Yuan, A.Martínez-Gracia, J. Wang, J. Uche, H. Chen CIRCE Institute - Department of Electrical Engineering, University of Zaragoza. Spain, and Huazhong University of Science and Technology, China</p>
12:00-14:30	<p style="text-align: center;"><b>Oral communications VI.II Room A2 Engineering and Materials</b></p> <p><b>Harnessing the energy of tidal currents: state-of-the-art and proposal of use in EV charging points</b> Aitor Fernández-Jiménez, Daniel Fernández-De la cruz, Jesús Ángel Ruiz-Torres, Jose Luis Perrino-Blanco, Raúl Jimeno-Almeida University of Oviedo, Spain</p> <p><b>Vibrations in leaking spherical valves with annular seal</b> Hesham Awad, Jorge Parrondo, Víctor González Arab Academy for science, Technology &amp; Maritime Alexandria, Egypt</p> <p><b>An experimental study on the propagation of the pressure fluctuations induced in a tube array under forced vibration</b> Jorge Tufiño, Beatriz de Pedro, Guillermo Laine, Jorge Parrondo University of Oviedo, Spain</p> <p><b>Analysis of the Hydrogen Induced Cracking by means of the Small Punch Test: effect of the specimen geometry and the hydrogen precharge mode</b> Guillermo Álvarez, Pablo Vinjoy, Mario López, Cristina Rodríguez University of Oviedo, Spain</p> <p><b>Aerodynamic characterization of timber bridges</b> Antonio Navarro-Manso, María José Suárez López, Eduardo Álvarez Álvarez, Eduardo Blanco Marigorta, Juan Carlos Santos Fernández University of Oviedo, Spain</p> <p><b>Investigate the coupling effect of the pipe system on the pressure fluctuation of model pump</b> Guidong Li, Jorge Luis Parrondo Gayo University of Oviedo, Spain</p>
12:00-14:30	<p style="text-align: center;"><b>Oral communications VI.III Room A3 Environment and Sustainable Energy</b></p>



	<p><b>Separation of lead ions from waste water using rice husk</b> Amir Shafeeq Technical University of the Punjab, Pakistan</p> <p><b>Co-combustion Characteristics of Inferior Coal and Biomass blends</b> Syed Nadir Hussain Technical University of the Punjab, Pakistan</p> <p><b>Fuel Cells, a clean and efficient way of producing electricity: Brief description of the different types of fuel cells and their applications</b> Jesus Tartaj Salvador Institute of Ceramics and Glass (CSIC), Spain</p> <p><b>Process for the Synthesis of Novel Electrically Conducting Adsorbent Material</b> Hafiz Muhammad Anwaar Asghar, Nigel Willis Brown, Edward P. L. Roberts Technical University of the Punjab, Pakistan</p> <p><b>Combustion Characteristics of Low Ranked Pulverize Coal and Agricultural Residues Blends</b> Hamed Sattar Technical University of the Punjab, Pakistan</p>
14:30-15:00	Closing session.
15:00	Closing cocktail with live music
17:00	Walking tour in Oviedo

## POSTERS SESSIONS

<p><b><u>Posters Session I</u></b> <b>Engineering and Materials</b></p>	
	<p><b>Removal of Formaldehyde by CWO</b> Estefania Rodríguez, Mirella Gutiérrez, Violeta Mugica, Miguel Torres Metropolitan Autonomous University, Mexico</p> <p><b>Thermal coals revalue: Environmental implications</b> Juan José Vidal Lombas, M. Inmaculada Álvarez Fernández, M. Concepción Casado Sulé University of Oviedo, Spain</p> <p><b>Removal of fluoride in water with Mexican Natural Zeolite</b> Javier Sampedro Duran, Miguel Torres Rodríguez, Mirella Gutiérrez Arzaluz, Violeta Mugica Álvarez Metropolitan Autonomous University, Mexico</p> <p><b>Influence of the thickness of polyaniline coating on corrosion protection of PbO<sub>2</sub> electrode</b> Boudieb Naima, Hamidouche Fahime, Ghebache Zahra</p>



University M'Hamed Bougara-UMBB-Boumerdes, Algeria

**Separation and capture of co2 through a zeolitic membrane**

Dalia Santa Cruz Navarro, Miguel Torres Rodríguez, Violeta Mugica Álvarez, Mirella Gutiérrez Arzaluz  
UAM Azcapotzalco, Mexico

**How to develop an organic Rankine cycle simulator. The library of thermodynamic functions**

Jose Luis Sampedro Redondo  
University of Oviedo, Spain

**Causes of ground settlements in upper reservoir of hydro-wind plant of El Hierro and method implemented for soil improvement**

Fabiola Fernández Baniela, Daniel Arias Prieto, Álvaro Rubio Ordoñez  
IDOM and University of Oviedo, Spain

**Analysis technique by libs of powder mineral and slurry samples**

Germán Marcos-Robredo, Miguel Ángel Rey-Ronco, Teresa Alonso-Sánchez  
University of Oviedo, Spain

**Temperature Monitoring of Electrical Substation Equipment by Infrared Thermography**

Alberto Fernández Villán, Miguel Ángel Fernández Fernández, Juan Luis Carús Candás, Pedro De Arquer Fernández, Nabila Arias Linacero, Rubén Usamentiaga Fernández  
TSK, Spain

**Effects of different adhesives on static and dynamic mode II fracture behaviour of composite bonded joints**

Sara Sánchez González, Patricia Coronado, Antonio Argüelles, Jaime Viña  
University of Oviedo, Spain

**Towards circular economy: Different strategies for polyurethane waste recycling and the obtaining of new products**

Lorena Ugarte, Tamara Calvo-Correas, Itziar Gonzalez-Gurrutxaga, Cristina Peña-Rodriguez, Oihane Etxeberria, M. Angeles Corcuera, Arantxa Eceiza  
University of the Basque Country (UPV/EHU), Spain

**Low temperature and resin effects on the mode I interlaminar fracture toughness in aeronautical quality polymer composites**

Patricia Coronado, Pedro Camanho, Antonio Argüelles, Jaime Viña, Sara Sánchez González  
University of Oviedo, Spain

**"LIFE Eucalyptus Energy" project: optimization and sustainability of electrical production and biochar from eucalyptus sub-products**

Celia Martinez Alonso, Alba Fanjul, Lucía Hernandez, Rebeca Fernandez, Juan Majada  
CETEMAS, Spain

**Detection and Location of Defects in Photovoltaic Plants Using a UAV Infrared Thermography System and Electrical Data Analysis**



Miguel Ángel Fernández Fernández, Alberto Fernández Villán, Elena Antuña Yudego, Adrián León Álvarez, Miguel García Nicieza, Gabriel Naveiras Llorente, Christian Robledo Zapico  
TSK, Spain

**Fractographic analysis of the temperature influence in the mode I fatigue delamination of carbon/epoxy composites**

Patricia Coronado, Jaime Viña, Antonio Argüelles, Sara Sánchez  
University of Oviedo, Spain

**Co-combustion of ancient coal wastes in clinkerization process**

Beatriz Malagon, Gema Fernández, Rafael Rodriguez, Rafael Murillo  
University of Cantabria, Spain

**Universal solar battery charger for off-grid storage systems**

Alvarez Diaz Gustavo, Paredes Sanchez J. Pablo, Nuño Garcia Fernando, Xiberta Bernat Jorge  
University of Oviedo, Spain

**Prediction of hot metal temperature in a BOF converter using an Artificial Neural Network**

Jose Diaz, Francisco Fernandez, Aida Gonzalez  
University of Oviedo, Spain

**Determination of the theoretical spectrum of gamma emission generated by dgnaa in samples of ashes of thermal power plants**

German Marcos-Robredo, Pilar Castro-García, Teresa Alonso-Sánchez, Miguel Angel Rey-Ronco  
University of Oviedo, Spain

**New UPR polymeric flooring system, zero VOC's**

R. Segura, C. Corzo, U. Pamplona, I. Velázquez  
RASE Proyectos Productivos, México

**Analyses of different adhesives on mode I and mode II delamination growth of composite bonded joints**

Sara Sánchez González, Patricia Coronado, Antonio Argüelles, Jaime Viña  
University of Oviedo, Spain

**Influence of the thickness of polyaniline coating on corrosion protection of PbO<sub>2</sub> electrode**

Boudieb Naima, Bounoughaz Moussa, Hamidouche Fahim, Ghebache Zahra  
University M'Hamed Bougara-UMBB-Boumerdes, Algeria

**Hydrogen trapping in a cold worked CrMo(V) Steel**

Luis Borja Peral, Ignacio Aguirrezabalaga, Javier Belzunce, Alfredo Zafra, Ines Pariente  
University of Oviedo, Spain

**Marble, granite culture and other construction materials through hybrid polymeric process zero**

R. Segura, I. Velázquez  
RASE Proyectos Productivos, México

**Circular economy in the manufacture of bioplastics**

Noé Anes, Francisco Blanco, Antonio Luís Marqués



University of Oviedo, Spain

**Silicomanganese and ferromanganese slags treated with concentrated solar energy**

Daniel Fernández González, Juan Piñuela Noval, Luis Felipe Verdeja González

University of Oviedo, Spain

**Posters Session II**  
**Environment and Sustainable Engineering**

**Environmental impacts and carbon footprint of producing wine from mountain viticulture in North Spain (Cangas PDO)**

Samuel Gancedo, Amanda Laca, Adriana Laca, Mario Díaz

University of Oviedo, Spain

**Toxicity and antibacterial activity of ciprofloxacin in conventionally treated urban wastewater before and after oxidative treatment**

Lilya Boudriche, Irene Michael-Kordatou, Stella Michael, Popi Karaolia, Amel Boudjemaa, Despo Fatta-Kassinos

CRAPC research center, Algeria

**Fungal treatment for the hydrolysis of complex carbohydrates from fruit wastes**

Laura Losada, Amanda Laca, Ana Isabel Díaz, Adriana Laca, Mario Díaz

University of Oviedo, Spain

**Adsorption of Cu(II) ions onto chemically modified cellulose beads from almond shell: equilibrium, kinetics, mechanism and reusability**

Najeh Maaloul, Paula Oulego, Manuel Rendueles, Achraf Ghorbal, Mario Díaz

University of Oviedo, Spain

**Study of the physicochemical, bacteriological and detection properties of heavy metals in the waters of the Keddara barrage**

Naima Ghemmit-Doulache, Djamila Ghemati

University M'Hamed Bougara-UMBB-Boumerdes, Algeria

**Determining the thermal diffusivity of the ground from an experimental geothermal borehole**

Pilar Castro, Germán Marcos, Miguel Ángel Rey, Teresa Alonso

University of Oviedo, Spain

**Software for obtaining the Solar Coverage of a Solar Thermal Energy installation for Domestic Hot Water supply by applying the f-Chart Method**

Sofía Sánchez, Pilar Castro

University of Oviedo, Spain

**GIS based method for mapping horizontal and vertical distribution of lake water quality parameters in the zone of active water Exchange**

Beata Ferencz, Jarosław Dawidek



University of Life Sciences, Poland

**Earth dam monitoring in the Soil Take Care Project**

Inmaculada Alvarez Fernandez, Celestino Gonzalez Nicieza, Roman Fernandez Rodriguez, Juan Ramon Garcia Menendez  
University of Oviedo, Spain

**Mineral processing technologies for the remediation of soils polluted by trace elements**

Carlos Boente, Eduardo Rodríguez-Valdés, Carlos Sierra, Diego Baragaño, José Luis Rodríguez Gallego, Juan María Menéndez Aguado  
University of Oviedo, Spain

**Simultaneous Production of Calcium Carbonate and Sodium Bicarbonate from CO<sub>2</sub> and Steelmaking Slag with Accelerated Carbonation Scheme**

Min-Woo Lee, Se-Hun Kim, Kunwoo Han  
Keimyung University, Republic of Korea

**Environmental threats of ancient Pb mining and metallurgical activities in the Linares mining district (Southern Spain)**

Carlos Boente, Carlos Sierra, Julián Martínez, Eduardo Rodríguez-Valdes, Elías Afif, Javier Rey, José Luis Rodríguez Gallego  
University of Oviedo, Spain

**Selenium monitoring, management and remediation in the surface waters of a gold mine**

Diego Baragaño, Esther Fernández-López, Eduardo Rodríguez-Valdés, Juan José Álvarez Rueda, José Luis Rodríguez Gallego  
University of Oviedo, Spain

**Study on the Potential of Forest Biomass Residues for Bio-Energy**

Esperanza Mateos  
University of the Basque Country (UPV/EHU), Spain

**Descendant Step Leader Speed Characterisation in Electric Thunderstorms**

Anibal Seminario, Cristina González-Morán, Pablo Arboleya  
University of Oviedo, Spain

**Determination of particles and cancerigen compounds issued by the combustion of diesel and diesel:biodiesel mixtures**

Samantha Arteaga Del Angel, Brenda Liz Valle Hernández, Violeta Mujica Alvarez  
Autonomous Metropolitan University, Mexico

**Bioenergy Valuation of Poultry Litter by Applying an Enzyme Product for Environmental Purposes: A New Applied Technology**

G. Burguet-Fernández, J.P. Paredes-Sánchez, J. Xiberta-Bernat,  
University of Oviedo, Spain

**Power Generation from Bioenergy Crops by Technical and Economic Feasibility Assessment**

R. Saint-Marc, J.P. Paredes-Sánchez, J. Xiberta-Bernat  
University of Oviedo, Spain





**Dolomite as a low-cost catalyst for pre-reforming of bio-oil**

Beatriz Valle, Naiara García-Gómez, Aingeru Remiro, Javier Bilbao, Ana Gayubo  
University of the Basque Country, Spain

**Design, construction and commissioning of an apparatus for measuring the thermal conductivity of geothermal grouting materials based on the transient hot wire method**

Carlos Castán-Fernández, German Marcos-Robredo, Miguel Angel Rey-Ronco, Teresa Alonso-Sánchez  
University of Oviedo, Spain

**Study of the thermal conductivity of different geothermal grouting materials with a homemade apparatus**

Carlos Castán-Fernández, German Marcos-Robredo, Miguel Angel Rey-Ronco, Teresa Alonso-Sánchez  
University of Oviedo, Spain

**Phosphate Removal from Wastewater Using Steelmaking Slag: Its Potential and Removal Mechanism**

Min-Woo Lee, Shin-Hee Kim, Kunwoo Han  
Keimyung University, Republic of Korea

**Lignocellulosic biomass as a source of raw materials for the synthesis of polyurethanes**

Tamara Calvo-Correas, Lorena Ugarte, José Ramón Ochoa-Gómez, Tomás Roncal, C Diñeiro, M. Angeles Corcuera, Arantxa Eceiza  
University of the Basque Country (UPV/EHU), Spain

**Urban geology and geotechnics by using GIS-based databases: the case of Asturian cities (NW Spain)**

Luis Pando, Luis M. Díaz-Díaz, Carlos López-Fernández, Daniel Arias  
University of Oviedo, Spain

**Control and reduction of indoor radon levels at the University of a Coruna**

Patricia Blanco-Rodríguez, Guillermo Laine-Cuervo, Alberto Otero-Pazos  
University of Oviedo, Spain

**Criteria for the selection of working fluids for geothermal power plants: a case study in Spain**

Noé Anes, Antonio Luis Marques  
University of Oviedo, Spain

**Climate Change Adaptation Strategies in Coastal Urban Environments. The Case of Sandnes (Norway)**

Diego López-Mulero, Ove Njå, Carlos López Fernández, Luis Pando  
University of Stavanger, Norway

**Induced mobilization of As contained in metallurgical waste using electrokinetic remediation technology: environmental implications and technical limitations in soil remediation of orphan mining areas**



Antonio Luis Marques Sierra, Pablo Cienfuegos, Rodrigo Alvarez, Almudena Ordoñez, Nieves Roqueñi, Jorge Loredó  
University of Oviedo, Spain

**Methodology for the generation of solar radiation maps for the feasibility study of solar projects using free GIS: a case study en North of Spain**

Antonio Luis Marques Sierra, Jose Marcos Ulecia Roman  
University of Oviedo, Spain

**New equipment for complementary petrophysical characterization of rocks for deep geological storage**

Pablo Cienfuegos-Suárez, Efren Garcia-Ordiales,  
EIMEM, University of Oviedo, Spain

**Use & re-use of water resources in the exploration non-conventional hydrocarbons**

Pablo Cienfuegos-Suárez, Rocio García-Menendez, Efren Garcia-Ordiales, Jorge Soto-Yen  
EIMEM, University of Oviedo, Spain

**Possibilities for use of coal bed methane & coal bed mine in Asturias**

Diego Alonso-Fernandez, Pablo Cienfuegos-Suárez, Efren Garcia-Ordiales  
EIMEM, University of Oviedo, Spain

**Improvement to process of obtaining forest woodchip for heating use**

Alba Fanjul, María Menéndez-Miranda, Juan Majada, Elena Canga  
Forest and Wood Technology Centre of Asturias (CETEMAS), Spain

**CBM resources estimations for the development of coal mine methane in the Asturian Central Basin, Spain**

Diego Alonso-Fernandez, Pablo Cienfuegos-Suárez, Efren Garcia-Ordiales  
EIMEM, University of Oviedo, Spain