



Scientific Program



SciKnowledgeTM
European Education Scientific Conferences

Welcoming Message

Dear Colleagues,

The 2024 International Conference on Green Energy and Environmental Technology (GEET-24) is organized by academics and researchers belonging to different scientific areas of the University Complutense of Madrid, University Carlos III of Madrid, University of Extremadura and University of Las Palmas de Gran Canaria with the technical support of Sciknowledge European Conferences.

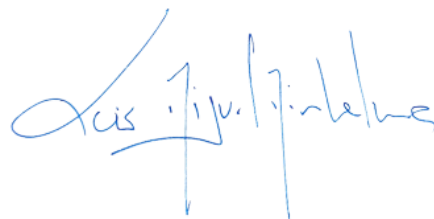
This event aims to create an international forum for academics, researchers and scientists worldwide to discuss worldwide results and proposals regarding the soundest issues related to Green Energy and Environmental Technologies.

This event will include the participation of renowned keynote speakers, oral presentations, poster sessions, technical conferences related to the topics dealt with in the Scientific Program, and an attractive social and cultural program.

The papers will be published in the Abstracts E-book of the Conference. Those communications with enough quality can be further considered for publication in International Conference Journals. At the authors' choice, those works unsuitable for publication in any congress journals will be published in the Extended Abstracts E-book.

To finish, I hope that all of you will enjoy the Conference, and I wish our visitors from abroad will have an enjoyable stay in Rome.

Thank you

A handwritten signature in blue ink, reading "Luís Miguel Minhalma". The signature is fluid and cursive, with the first name "Luís" being the most prominent.

Prof. Luís Miguel Minhalma PhD
GEET-22 Chairman
Instituto Superior de Engenharia de Lisboa
Instituto Politécnico de Lisboa, ISEL, Portugal

Organizing Committee

Chairman

Prof. Luís Miguel Minhalma PhD
GEET-24 Chairman
Instituto Superior de Engenharia de Lisboa
Instituto Politécnico de Lisboa, ISEL, Portugal

Co-Chairman

Prof. Ana Maria de Matos Charas PhD
Instituto de Telecomunicações, Portugal

Members

Prof. Elisenda Pulido Melián PhD
Chemical Department
University of Las Palmas de Gran Canaria, Spain

Prof. Juan García Rodríguez PhD
Chemical Engineering Department
University Complutense of Madrid, UCM, Spain

Prof. Raviraj M. Kulkarni, PhD
Department of Chemistry,
Gogte Institute of Technology, India

Prof. Vahid Jabbari
Chemistry Department
The University of Texas at El Paso, USA

Prof. Avelino Nuñez-Delgado PhD
Department of Edafology and Agricultural Chemistry. University of Santiago de Compostela, Spain

Prof. Silvia Álvarez Torrellas PhD
Chemical Engineering Department
University Complutense of Madrid, Spain

Prof. Israel González Carrasco PhD
Computer Sciences Department
University Carlos III of Madrid, Spain

Prof. Marcos Larriba Martínez PhD
Dpto. Ingeniería Química y de Materiales
University Complutense of Madrid, Spain

Prof. Joaquin R. Dominguez PhD
Chemical Engineering Department
University of Extremadura, Spain

Prof. Yaoyu Zhou
College of Resources and Environment
Hunan Agricultural University, China

Elza Bontempi PhD
Department of Chemistry
University of Brescia, Italy

Helder Teixeira Gomes PhD
Coordinator Professor at the Department of Chemical and Biological Technology.
Polytechnique Institute of Bragança, Portugal

Prof. Marco Race PhD
Department of Civil and Mechanical Engineering
The University of Cassino and Southern Lazio, Italy

Provisional GEET-24 PROGRAM

Three-day event

Important Note:

Conference attendees have accepted in the terms and conditions of their registration that their presentation will take place on any day and hour of the schedule established by the Conference Organization.

The day and order of presentation assigned by the Organization to the speakers and poster-type presenters may not be altered by particular requests. Changes will only be accepted for reasons of **delay in the visa or flight**, which must always be **previously accredited documentary**.

Presenters who are not in their place in the assigned time slot will lose the right to present the work and obtain their certificate.

GEET-24 Oral communications

(12 minutes for presentation + 3 minutes for questions)

Monday, 29 July 2024 (afternoon)

SCHEDULE	MAIN ROOM 1
13:30-14:15 (afternoon)	Checking name and ID number RECEPTION COCKTAIL
14:15-15:00	Documentation Delivery
15:30-15:45	Opening session
15:45-16:30	Plenary Talk 1
16:30–17:45	<p>ENERGY AND ENGINEERING</p> <p>Investigating Waste Heat Recovery with Serpentine Condensing Heat Exchanger Mohab Salem Lithuanian Energy Institute Lithuania</p> <p>Building Resilient Framework for Improving Electricity Access in Low Income Sub-Saharan African Countries: Role of Multistakeholder Partnership and Local Ownership (Capacity Promotion) Gaye Edobor Atlantic Technological University Sligo Ireland</p>

	<p>Unveiling the potential of functionalized Ti3C2/WS2 heterostructures as efficient photocatalyst for Hydrogen production Levna Chacko University of Chemistry and Technology Czech Republic</p> <p>Preventing Money from Vaporizing: Oxygen Liquefaction's Role in Avoiding Economic Loss in the Hydrogen Sector Ricardo Assunção IST-ID Portugal</p>
17:45-18:15	<p>POSTER SESSION</p> <p>GEET-1</p> <p>COFFEE BREAK</p>
18:15 -19:00	<p>Hydrogen Acceptance in The Portuguese Transport Sector Rui Costa Neto Portugal</p> <p>Techno-Economic Analysis of Vehicle-to-Grid Energy Storage Service Integration in the Portuguese Electricity Market Diogo Aroso IST-ID Portugal</p>

GEET-24

Tuesday, 30 July 2024 (morning)

SCHEDULE	MAIN ROOM 1	ROOM 2
08:45-09:30	Plenary Talk 2	
	<p>Carbon Molecular Sieve Membranes: an emerging and highly promising technology for the energy decarbonization Gabriel Bernardo Faculdade de Engenharia da Universidade do Porto Portugal</p>	

09:30 – 11:30

MATERIALS FOR INDUSTRY

Encapsulation of vegetal and essential oils in hollow silica particles

Filipa Oliveira Gomes
CeNTI - Centre for Nanotechnology and Smart Materials
Portugal

Investigation of ZnO antibacterial surface treatment of shoe lining materials

Darina Zheleva
University of Chemical Technology and Metallurgy
Bulgaria

The challenging world of Nanozymes: a guide to clarify some aspects of their catalytic activity

Giulia Mirra
Italian Institute of Technology
Italy

Forging Insight: Unlocking the potential of photonic crystal surface modification for sensing applications.

Weronika Zajac
University of Wrocław
Poland

Production of Standardized Concentrates from Cardoon (*Cynara cardunculus* L.) Flower Extracts by Cellulose Acetate Ultrafiltration Membranes

Luis Miguel Minhalma
CEFeMA
Portugal

MATERIALS FOR ENERGY

High-entropy ferrites synthesized via mechanochemical/thermal treatment, their structure and potential use as components in Li-ion batteries

Martin Fabian
Institute of Geotechnics
Slovakia

ENVIRONMENTAL TECHNOLOGY

Application of Semiconducting Nanomaterials as Photocatalysts in Environmental Remediation

Victoria Ferrerira
FCiências.ID
Portugal

Multitasking Box-Jenkins moving average-based cheminformatic modelling to characterize the aquatic toxicity of Per- and poly-fluoroalkyl substances

Amit Kumar Halder
LAQV-REQUIMTE
Portugal

Synergistic effect between reactive carbon support and cobalt active phase in the oxygen evolution reaction

Termeh Darvishzad
Jagiellonian University
Poland

Very efficient post-reverse osmosis (RO) adsorbent for home RO systems to remove As(III) from drinking water

Vishwesh Dutt Awasthi
IIT Bombay
India

Exploring MIL-53 (Al) as a Novel Adsorbent for Ciprofloxacin Removal: Synthesis, Characterization, and Adsorption Behavior

Duygu Yanarda Kola
Konya Technical University
Turkey

Fabrication of bismuth-based coordination polymer-derived material for the electrochemical reduction of N₂ to ammonia

Deep Lata Singh
Indian Institute of Technology Madras
India

11:30-12:00

POSTER SESSION

MNS-2

GEET-2

COFFEE BREAK

12:00 – 14:00

MATERIALS FOR ENERGY

Solar thermal absorber obtained from electrophoretic deposition of Fe₃O₄ nanorods

Al Amouri Hiba
Institut de Chimie Separative de Marcoule
France

NEW MATERIALS DESIGN

Bimetallic Catalysts with Tuneable Selectivity for Furfural Hydrogenation

Ilaha Hasanova
Queen Mary University London
United Kingdom

The design of a bifunctional monolithic catalyst for tandem deacetalization-condensation reaction

Agnieszka Ciemięga
Institute of Chemical Engineering Polish Academy of Sciences
Poland

Silica-zirconia monoliths promising materials for catalytic processes

Katarzyna Maresz
Institute of Chemical Engineering
Poland

Influence of cobalt loading on carbonized ZIF-67 ORR behaviour

Nemanja Gavrilov
University of Belgrade-Faculty of Physical Chemistry
Serbia

X-Ray diffraction and high-pressure spectroscopy on noble metal nanoclusters

Khadijetou Ahmed Ethmane
University of Geneva
Switzerland

ENVIRONMENTAL TECHNOLOGIES

Enhanced Photoelectrochemical activity of TiO₂ Nanotube Arrays grown on Ti-6Al-4V alloy: Impact of Annealing Atmosphere

Harikrishna Rajubhadran
Indian Institute of Technology Madras
India

Remediation of diesel-polluted soil by the combined thermal desorption and thermal plasma methods

Dovile Gimzauskaite
Lithuanian Energy Institute
Lithuania

RECYCLING AND VALORISATION

Graphene Oxide from Waste Dry Cells: A Novel Approach for Precious Metal Extraction from E-Waste

Saira Arif
COMSATS University
Pakistan

Biomass transformation in bio monomers using heterogeneous catalysts

Jesus M Requies
University of the Basque Country
Spain

(V)

Utilizing Rapeseed Stalk as Supercapacitor Electrode Material

Anil Yilmaz
İTÜ Bilimsel Araştırma Projeleri Birimi
Turkey

Biopolymers-based materials for pollutants detection and removal

Irene Vassalini
University of Brescia
Italy

Hydrogen production from plastic waste

Cristina Ruiz Garcia
Universidad Autonoma de Madrid
Spain

14:00-15:30

LUNCH

21:00-22:30

AFTERNOON LISBON TOUR, all together
(ask for MEETING POINT at the Registration Desk)

GEET-24

Wednesday, 31 July 2024 (morning)

SCHEDULE	MAIN ROOM 1 (Ground Floor)	ROOM 2 (First Floor)
08:45-11:30	<p>MATERIALS FOR ENVIRONMENT</p> <p>Preparation and Characterization of Cellulose Acetate/SiO₂/UiO-66(Zr) Ultrafiltration Membranes for the Removal of Uremic Toxins in Hemodialysis Luis Miguel Minhalma Instituto Superior de Engenharia de Lisboa and CEFEMA Portugal</p> <p>(V) Carrier Transport and Behaviour of Hybrid Photovoltaic Solar Cell Inorganic and Organic Nanocrystal Devices Islam Aynul University of Glasgow United Kingdom</p> <p>NEW MATERIALS DESIGN</p> <p>The effects of unit cell on the compressive properties of selective laser melted Al-8.3Fe-1.3V-1.8Si alloy lattice Ming-Wei Wu National Taipei University of Technology Taiwan</p> <p>Machine-Learning approach and melting point profile on the 3D-structural configuration of 2,4-dichloro phenoxy acetic acid Gonçalo V. S. M. Carrera NOVA ID Portugal</p> <p>Noncovalent interactions involving Cu, Ag and Au nanoparticles and aromatic systems: Introducing Regium bonds Antonio Bauza Universitat de les Illes Balears Spain</p>	<p>RECYCLING AND VALORISATION</p> <p>Exploring solutions for glass waste transformation into valuable resources Daniel Silva Instituto de Soldadura e Qualidade Portugal</p> <p>Industrial alkaline battery recycling waste as secondary raw material for LECAs: Experimental and Environmental Assessment Raquel Casasola Fernandez Postdoctoral Researcher Spain</p> <p>Resource Circulation of Waste Incineration Fly Ash for Zeolite Synthesis and Applications in Pollutant Removals Jyh-Cherng Chen Feng Chia University Taiwan</p> <p>Production of Biogas from Distillery Waste: A Cost-Effective Biofuel Poulami Chatterjee Tomas Bata University in Zlin Czech Republic</p> <p>ENERGY AND ENGINEERING</p> <p>Carbon Molecular Sieve Membranes: an emerging and highly promising technology for the energy decarbonization Gabriel Bernardo Faculdade de Engenharia Portugal</p> <p>Implementing occupant voting systems to collect occupant comfort feedback in buildings to improve HVAC management strategies Cindy UMANA-LOPEZ ARMINES / CMA France</p>

	<p>Development of controlled-release core-shell hydrogel matrices. Florian JURIN Institut UTINAM Morocco</p> <p>Spectroscopic ellipsometry in the study of optical properties of graphene and graphite-like layers Janusz Jaglarz Cracow University of Technology Spain</p>	<p>Investigating the spatial and temporal patterns of drought in Jordan Zeyad Tarawneh The Hashemite University Jordan</p> <p>Factors Affecting Public Attitudes Toward Renewable Energy: who is ready to go renewable during the energy crisis and why? Jan Hunady Mateja Bela University Slovakia</p>
<p>11:30-12:00</p> <p style="text-align: center;">POSTER SESSION MNS-3 GEET-3 COFFEE BREAK</p>		
<p>12:00 – 14:00</p>	<p style="text-align: center;">NEW MATERIALS DESIGN</p> <p>MXene-Based Ceramic Nanocomposites Enabled by SPS Maxim Sokol Tel Aviv University Israel</p> <p style="text-align: center;">(V)</p> <p>The interface of MOF and bioactive glass toward the design of functional biomaterials Marzena Fandzloch Institute of Low Temperature and Structure Research, Polish Academy of Sciences Poland</p> <p style="text-align: center;">MATERIALS FOR INDUSTRY</p> <p>A functionalized 3D-printed Polylactic Acid support for beverage clarification Erika Lunetta University of Rome Niccolo Cusano Italy</p> <p style="text-align: center;">(V)</p> <p>Effect of Mold Internal Chill Usage on the Mechanical Properties in the Manufacturing of Austenitic Stainless Steel Material by Casting Method Aykut Ucar Sakarya University Of Applied Sciences Graduate Education Institute Turkiye</p>	<p style="text-align: center;">ENERGY AND ENGINEERING</p> <p>Guiding the Design of Greener Efficient Solutions: Machine Learning Predictions for Deep Eutectic Solvents' Heat Capacity M Natalia DS Cordeiro LAQV-REQUIMTE Portugal</p> <p>Optimisation software framework for advanced floating offshore wind farm operations, and logistics Yaseen Adnan Ahmed University of Strathclyde United Kingdom</p> <p>A novel transferable framework for clustering Local Climate Zones for a practical analysis of Surface Urban Heat Islands: A Case of Cape Town, South Africa Tshilidzi Manyanya Katholieke Universiteit Leuven Belgium</p> <p>Future Cost Dynamics of Hydrogen Production in Prospective Green Hydrogen Exporters Aleksandra Komorowska Institute of the Polish Academy of Sciences Poland</p>

Water pollutants monitoring using hydrophobic paper-based SERS sensors

Natercia Martins
University of Aveiro
Portugal

Transient Modeling of Solar Water Heating System Performance for the Central Asian Region

Yerzhan Belyayev
Al-Farabi Kazakh National University
Kazakhstan

(V)

Green Hydrogen revolution: bibliometric review

Pablo Fernandez Arias
Catholic University of Avila
Spain

14:00-15:30

**CLOSING COCKTAIL
and
MUSIC CHAMBER CONCERT**
Flute and Piano Duet

POSTER SESSIONS GEET-1

Monday, 29 July 2024 (Afternoon) 17:45-18:15

TOPIC 1: Environmental Technologies

TOPIC 2: Recycling and Valorisation

TOPIC 3: Energy and Engineering

Title	Name	ID	Topic
Waste-based catalysts for the production of energy vectors	Elisa Galli	16	2
Sustainable Perspective: Utilizing Biomass Waste as Electrode Material for Supercapacitors	Fatemeh Bahmei	89	2
Analysis of the Key Elements of Pyrolysis of Biomass for Sustainable Fuel Production by Machine Learning	M. Erdem Gunay	2	2
Life Cycle Assessment of Bacterial Nanocellulose production from fibre sludge	Daniel Silva	71	2
Food Waste: A Potential Biomass for Biogas Production	Poulami Chatterjee	13	2
Electrocatalyst Ni _{0.1} Cd _{0.9} S@C HER performance in acidic media	Jaehun Lee	93	1

An Overview on Centrifugal Hydrogen Pipeline Gas Compressors	Abdelkadir Belhadj	58	3
Film Coefficient Approach for Ground Heat Exchangers	Alejandro Jesus Extremera-Jimenez	6	3

POSTER SESSIONS M&Ns-2

Tuesday, 30 July 2024 (morning) 11:30-12:00

TOPIC 1: Materials for Energy

TOPIC 2: Materials for Industry

TOPIC 3: Materials for Environment

TOPIC 4: New materials design

Title	Name	ID	Topic
Preparation and Characterization of Natural Dye-Doped TiO ₂ Nanoparticles: Applications for Green Photonics Devices	Maha Al-Hamadani	2	4
Influence of cerium (IV) oxide for reversible oxygen activity in Li ₂ RuO ₃ and Li ₃ RuO ₄	Martin Nedyalkov	34	4
Polyesters of azelaic acid and selected short-chain dihydroxy alcohols for the preparation of cell scaffolds	Aleksandra Bandzerewicz	58	4
Preliminary thermal characterization of selected rigid (RPU) and flexible polyurethane (FPU) adhesives	Magdalena Szumera	66	4
Synthesis of Long- and Uniform-length, and High-density Hair-like Carbon Nanotubes on Sub-micron-sized Spherical Catalyst Supports	Kazuya Kobiro	80	4
Synthesis and characterization of augite ceramics produced from spent vanadium catalyst	Rositsa Titorenkova	87	4
Thermal effects on the structural and magnetic properties of Co ₇₁ Fe ₄ Si ₁₀ B ₁₅ amorphous alloy ribbons	SOLTANI MOHAMED LARBI	97	4
Synthesis and characterization of augite ceramics produced from spent vanadium catalyst	Tsvetan Ivanov Dimitrov	117	4
A computational model for prediction the homogenized viscosity of polymeric nanocomposites with nano-inclusions	Oana Tatiana Nedelcu	124	4
Simulation of bilayer nanothermopiezomagnetic / piezoelectric using finite element method	Faliniaina rasoanoavy	121 & 122	4
Magnetic anisotropy induced by surface effect in thin film	Faliniaina	122	4

ferromagnetic layer using monte carlo ising model	rasoanoavy		
Web Crawling in Cognitive Production Planning of Materials	Andreas Kneissler	115	4

POSTER SESSIONS GEET-2

Tuesday, 30 July 2024 (morning) 11:30-12:00

TOPIC 1: Environmental Technologies

TOPIC 2: Recycling and Valorisation

TOPIC 3: Energy and Engineering

Bioethanol production capacity from Canary Island banana residue and impact on its carbon footprint	Juan Carlos Lozano Medina	4	1
Degradation of Azole Fungicides in WWTP Effluents by Intensified Advanced Oxidation Processes	Joaquin R Dominguez Vargas	24	1
Application of Boxe Behnken design in optimization of coupled advanced oxidation processes for azole degradation in water	Joaquin R Dominguez Vargas	25	1
Selenium removal from oil refinery wastewater using nanoscale zero-valent iron particles (nZVI) with/without electrochemical peroxidation	Henrik Hansen	9	1
Advancements and Challenges of Shipboard Carbon Capture Technologies: A Comparative Assessment	Yaseen Adnan Ahmed	70	1
Composite materials based on WO ₃ nanoparticles and glass fibers towards pollutants removal	Virginia Ferreira	76	1
Sustainable oxygen evolution reaction with Al-substituted ZnFe ₂ O ₄ spinel catalyst	Hojun Moon	90	1
Approach of Specific Fluorescent Peak in Synchronous Fluorescent to Measure TPH Content Contaminated by Diesel	WEN-LIANG LAI	52	1

POSTER SESSIONS

M&Ns-3

Wednesday, 31 July 2024 (morning) 11:30-12:00

TOPIC 1: Materials for Energy

TOPIC 2: Materials for Industry

TOPIC 3: Materials for Environment

TOPIC 4: New materials design

Title	Name	ID	Topic
Raman Spectroscopy and Optoelectronic Properties of Green Dye Doped Nanoparticles Embedded Polymer for Sensing Applications	Haitham Al-Tameemi	1	3
Advanced composite materials for microplastics removal from water	Adina-Elena Segneanu	12	3
Utilization of Hybrid Magnetic Nanoparticles for capture of VOCs based on halogen bonding	M. Nieves Pinya	18	3
Doped carbons derived from ZIF-67 for adsorption and electro-oxidative removal of dyes	Maja Milojevic-Rakic	51	3
Air dissolution and bubble growth in perfluorohexane (PP1) solutions	Rumyana Stanimirova	112	3
Recycling of Multilayer Soft Plastic Waste: Mechanical Properties and Viability	Vardai Robert	84	3
Effect of Ce modification on the electrochemical properties of NaFe ₂ (PO ₄) ₃ as an electrode material for sodium-ion batteries	Violeta Koleva	29	1
The role of Carbon-black in Composite Electrodes for Lithium and Sodium Ion Batteries	Silva Stanchovska	32	1
Reduced Graphene Oxide as an Important Component in Thermoelectric devices and Sodium-ion batteries	Sonya Harizanova	33	1
Surface modification of a silicon-carbon composite for lithium battery application	Chien-Hsiang Chang	40	1
Au ₉ Nanocluster Embedded in UiO-66-NH ₂ Metal-Organic Framework for Electrocatalytic Hydrogen Evolution Reaction	Aparna Ravari Kandy	46	1
Electrochemical performance of NaFeVPO ₄ (SO ₄) ₂ decorated with rGO at room and elevated temperature as promising electrode material for sodium-ion batteries	Trajche Tushev	31	1

POSTER SESSIONS GEET-3

Wednesday, 31 July 2024 (morning) 11:30-12:00

TOPIC 1: Environmental Technologies

TOPIC 2: Recycling and Valorisation

TOPIC 3: Energy and Engineering

The impact of different PV panel technologies on the environment	Iva Batic	39	3
Integrating Thermal Energy Storage for Sustainable Forest Industry Energy Hubs: A Multi-faceted Analysis Covering Cost, Thermodynamic Efficiency, and Availability	Behnam Talebjedi	36	3
Study on Adjustment Strategies for Taiwan's Power Structure under Different Environmental Goals	Shu-Kuang Ning	49	3
PV pile foundation design by cone penetration testing	Adrian Priceputu	88	3
Improving Durability by Structural Stabilization of Optimally Synthesized NiFe LDH with Carbon Shielding	Hyunsub Shin	92	3
Economic Impact Assessment of Renewable Energy Projects in Ecuador	Juan Manuel Roldan Fernandez	97	3
Thermal Performance Simulation of Latent Heat Thermal Energy Storage Device Using Multi-Stage Cascaded PCMs	Yerzhan Belyayev	100	3
Unlocking High-Efficiency Lithium-Ion Batteries: Sucrose-Derived Carbon Coating on Nickel-Rich NCM811 Cathodes	Myeong Seok Goh	91	3
Optimal Current Management Techniques in Interconnected Power Converter Arrays	Khalid Javed	27	3