CEST 2025

19 INTERNATIONAL CONFERENCE ON ENVIRONMENTAL SCIENCE & TECHNOLOGY

3 - 6 September 2025

Kos island / Greece

CONFERENCE PROGRAMME

GlobalNEST

Prince Sultan Bin Abdulaziz International Prize for Water

Recognizing Innovation

Winners for the 11th Award (2024)

Creativity Prize

[1] The team of Maria Cristina Rulli (Polytechnic of Milan, Italy) and Paolo D'Odorico (University of California, Berkeley, USA)

for spearheading novel analyses of the water-energy-food nexus that describe how numerous complex factors interact, providing for better freshwater stewardship in a changing, globalised world.

Maria Cristina Rulli

Paolo D'Odorico

[2] The team of Zhiguo He (Zhejiang University, China)

for developing working, versatile soft robots with unprecedented manoeuvrability that have the capacity for numerous underwater research and monitoring applications. Team members include: Pengcheng Jiao and Yang Yang.

Zhiguo He

Surface Water Prize

Qiuhua Liang (Loughborough University, UK) and his team

for developing innovative, open-source, multi-GPU hydrodynamic models to support real-time flood forecasting at high temporal-spatial resolutions. Team members include: Huili Chen, Xiaodong Ming, Xilin Xia, Yan Xiong and Jiaheng Zhao.

Qiuhua Liang

Groundwater Prize

Chunmiao Zheng (EIT, Ningbo, China) and his team

for powerful modelling tools to understand groundwater processes and manage groundwater resources under diverse eco-hydrological and climatic conditions, considering environmental and socioeconomic factors at local and national scales.

Chunmiao Zheng

Alternative Water Resources Prize

Virender K. Sharma (Texas A&M University, USA) and his team

for the effective removal of antibiotics and pharmaceuticals from wastewater through advanced oxidative processes by activated ferrate, which work at high, even enhanced, efficiency in water containing commonly occurring natural organic matter. Team members include: Ching-Hua Huang, Chetan Jinadatha and Radek Zbořil.

Virender K. Sharma

Water Management & Protection Prize

Joseph Hun-wei Lee (Macau University of Science & Technology, China)

for developing unique and highly effective hydro-environmental modelling systems for the sustainable water management of smart cities.

Joseph Hun-wei Lee

Invitation for Nominations

12th Award (2026)

Nominations open online until 31 December 2025

www.psipw.org e-mail: info@psipw.org

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CEST 2025

Host GlobalNEST

Co-organizers EOAN, aegean islands cyclades • dodecanese, Region of South Aegean

Scientific Support University of the Aegean, Università degli Studi di Salerno, Open University of Cyprus www.ouc.ac.cy

With the support of AUC UNIC LCF Athanasios C. Laskaridis Charitable Foundation, EWA European Water Association, UNESCO United Nations Educational, Scientific and Cultural Organization, With the support of World Water Assessment Programme

Under the Auspices Ministry of Environment & Energy

Platinum Sponsor Prince Sultan Bin Abdulaziz International Prize for Water

Gold Sponsors N.E.C.C.A. Natural Environment and Climate Change Agency, ASTERIADIS, SHIMADZU Excellence in Science

Silver Sponsors KKLnatura, GEON environmental consultants

Supporter Environmental Science Advances | Atmosphere | Nano | Processes & Impacts | Water Research & Technology, Royal Society of Chemistry

N.E.C.C.A.

Natural Environement and Climate Change Agency

The Natural Environment and Climate Change Agency (N.E.C.C.A.) is a Legal Entity under Private Law, supervised by the Ministry of Environment and Energy.

N.E.C.C.A. is responsible for implementing the policies developed by the Ministry of Environment and Energy regarding the management of protected areas, biodiversity conservation, and the promotion and implementation of sustainable development initiatives and climate change mitigation actions.

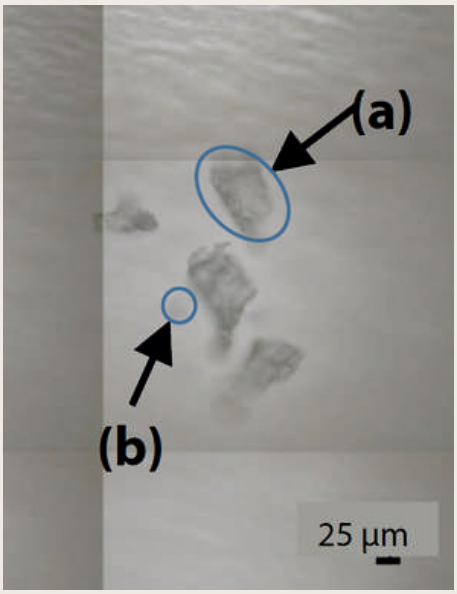
The 24 Protected Area Management Units (PAMUs), operating as departments within N.E.C.C.A., together with the Decentralized Administrations, Regions, and Municipalities, form the Protected Area Management System at the regional level.

necca.gov.gr

ASTERIADIS

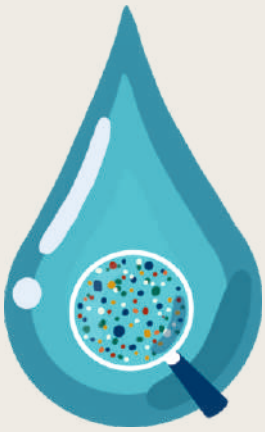
SHIMADZU
Excellence in Science

AIRsight Infrared/Raman Microscope



Analysis of Microplastics Using AIRsight Infrared/Raman Microscope

The AIRsight™ Infrared/Raman Microscope allows combined infrared and Raman analysis on microplastics without moving the sample. It enables accurate material identification and particle size measurement, even for very small microplastics (<10 µm). This innovative system improves over traditional methods like FTIR or pyrolysis-GC/MS, offering faster, more precise environmental microplastic analysis.



Fourier Transform Infrared Spectrophotometer Plastics Analysis System

Shimadzu's Plastic Analyzer is a comprehensive system for microplastic analysis, combining a Fourier Transform Infrared (FTIR) spectrophotometer, a single-reflection ATR attachment, and the Plastic Analyzer method package. This package includes unique UV-Damaged and Thermal-Damaged Plastics Libraries, plus a macro program for IR Pilot™, enabling the identification of degraded plastics that standard libraries can't detect. Together with infrared and Raman microscopes, it delivers precise material identification and particle size measurement, supporting advanced environmental microplastics research.

Welcome

On behalf of the **Organizing and Scientific Committees**, it is our great pleasure to welcome you to the 19th International Conference on Environmental Science and Technology in Kos, a Dodecanese Island with rich cultural heritage and natural beauty. Kos, the birthplace of Hippocrates (antiquity's most noted physician), is brimming with great archaeological interest, unique culinary tradition and alluring natural activities to select from.

CEST2025 will host **more than** 40 sessions and **over** 430 oral and poster presentations from all the fields of environmental science and technology. Apart from the presentations in the Opening Session, 7 plenary speeches and 7 side events have been scheduled.

Personally, I would like to thank the conference committees for the excellent and fruitful collaboration, CEST staff, participants, session chairs, and keynote and plenary speakers for helping us to build this very exciting conference program.

Our team has been making significant effort so that your participation will be scientifically rewarding and at the same time you will enjoy your stay in the island of Kos!

Chairpersons

Prof. Demetris F. Lekkas
University of the Aegean,
Greece

Prof. Antonis Zorpas
Open University of Cyprus,
Cyprus

Prof. Vincenzo Belgiorno
University of Salerno,
Italy

CEST2025

The ongoing biodiversity crisis urges governments, countries, organizations & citizens to join their forces to protect nature. The Sustainable Development Goals (SDGs), launched ten years ago by the United Nations, set targets to address global humanitarian and environmental challenges by 2030. Yet, recent data indicate a slow progress towards that direction, with only 17% of SDGs to be currently on track (UNSTATS, 2024). Meanwhile, over 1.2 billion tonnes of plastic waste are expected to be generated by 2060.

The recently adopted EU Regulation 2024/1991 on nature restoration and amending, also known as "Nature Restoration Law", establishes a framework to all Member States to draft & implement area-based restoration measures for degraded freshwater, terrestrial & coastal habitats by 2030. Restoring natural ecosystems is crucial - among others - to ensure that biodiversity loss will be reversed, land, air & water degradation will be abated, food security and urban ecosystem health will be safeguarded, and local populations will be empowered. At an international level, following the UN Biodiversity Conference (COP15) in Canada in December 2022, COP16 landing in Cali, Colombia, in 2024, recognised and appraised the indisputable legacy of indigenous peoples and people of African descent in biodiversity conservation. That is not to overshadow the significant pending issues of lacking financial models and monitoring mechanisms towards the protection of biodiversity.

Tourism, an important source of revenue for many cities & regions, presents a rising international trend, according to the World Tourism Barometer of UN Tourism, yet strikes a balance between environmental protection & economic growth. Integrating Circular Economy principles in tourism can ensure that current excessive resource consumption and waste generation are minimized, inclusive value chains are maximized, and the local communities are being rightfully integrated, if appropriate legislation is put in place.

CEST2025 is held at a pivotal time when the intensifying climate crisis - linked with the **depletion** and **contamination of water resources** - is challenging the resilience of societies worldwide and reshaping the planet's natural systems.

CEST2025 will also explore the role of a circular economy in mitigating impacts by reducing waste, promoting sustainable resource use, and driving innovations that foster environmental and economic resilience. Bringing together experts from multiple fields, this event aims to catalyze collaborative solutions for a more sustainable future. The conference is organized biannually by the **Global Network of Environmental Science and Technology** jointly with the **University of the Aegean** (Greece). It is scientifically supported by the **Open University of Cyprus** (Cyprus) and the **University of Salerno** (Italy). The event is under the auspices of the **Ministry of Environment and Energy**, under the patronage of the **World Water Assessment Programme of UNESCO** and supported by the **A.C. Laskaridis Charitable Foundation** and the **European Water Association** (EWA).

*Source: The Sustainable Development Goals Report 2024

Conference Thematic Areas

WATER & WASTEWATER TREATMENT AND REUSE

CIRCULAR ECONOMY AND BIOECONOMY

PLASTICS IN THE ENVIRONMENT

SOLID WASTE MANAGEMENT

ENVIRONMENTAL MANAGEMENT & POLICIES

ARTIFICIAL INTELLIGENCE IN ENVIRONMENTAL APPLICATIONS

ENVIRONMENTAL POLLUTION

ECOLOGY, ENVIRONMENTAL CHANGE & MANAGEMENT

HYDROLOGY & WATER RESOURCES

ENVIRONMENTAL HEALTH & WELL-BEING

ENERGY TECHNOLOGIES

CLIMATE CHANGE

PARTICIPANTS

- Academics
- Researchers
- Government Officials
- Top Managers (CEOs, VPs, Directors, Gms)
- Policy and Decision Makers
- Thought Leaders
- Engineers and Scientists
- Entrepreneurs
- Students

Show me some stats!

CEST2025 is for everyone involved with environmental science and technology

4 days

6+ side events

40+ sessions

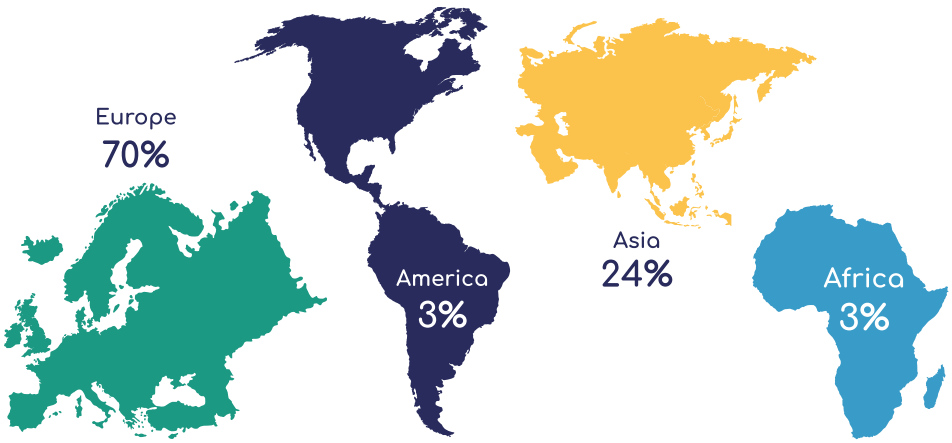
22 invited speakers

57 participating countries

430+ oral/poster presentations

5 collaborating scientific journals

CEST participant metrics



CEST series metrics

6514
papers presented (1989-2025)

9561
CEST citations*

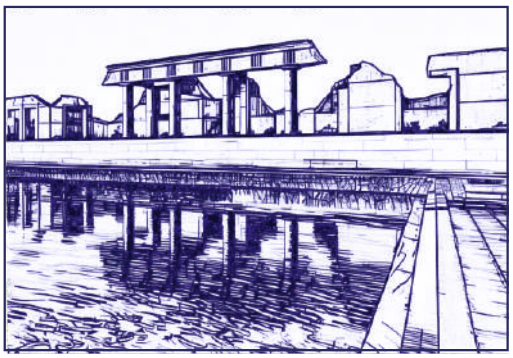
54
h-index

*Number of times CEST papers published in special issues of the collaborating journals since 2005 were cited.
Source: Web of Science, data retrieved in July 2025

CEST 2025

Guide for Delegates

Venue



CEST2025 will take place this year at **Kipriotis Village Resort** between **3** to **6 September.**
Kipriotis Village Resort is a 4-star hotel located on the **North-Eastern coast** of the **island of Kos** close to **Psalidi Beach** offering a tranquil experience.
Kos International Convention Centre (KICC) is a world-class 3-level modern building, situated directly adjacent to Kipriotis Village with a total capacity of up to **5,500 people** and a wide range of amenities. KICC is one of the largest and most impressive conference centers in the Mediterranean region.

Location

Psalidi, 85300 Kos, Greece

Conference language

The official conference language is **English**

Liability

The Conference fees do not include provisions for the insurance of participants or their accompanying guests against personal injuries, sickness and theft or property damage. Participants are advised to arrange for any insurance they consider necessary. Neither the Conference Organising Committee, nor Scientific and Programme Committee Members assume any responsibility for loss, injury, or damage to persons or belongings, whatever the cause may be.

Programme

CEST2025 Scientific Programme includes more than **40** **sessions**, running in **4** **parallel rooms**, with over **430** **Oral** and **Poster presentations**.
The conference sessions cover **27** **unique scientific topics.**

The up-to-date programme for each session is posted every morning in front of the respective room or the respective poster area.

CEST History

Invited Speakers

Dr Maria Antoniou
Cyprus University of Technology
Cyprus

Dr George Arampatzis
Technical University of Crete
Greece

Prof. Florencio Ballesteros
University of the Philippines Diliman
Philippines

Prof. Damià Barceló Culleres
University of Almeria
Spain

Dr Laure Berti-Equille
Institut de recherche pour le développement (IRD)
France

Prof. Paolo S. Calabrò
Università Mediterranea di Reggio Calabria
Italy

Dr Changseok Han
INHA University
South Korea

Prof. Kwang-Ho Choo
Kyungpook National University
South Korea

Prof. Marchello Colledani
Politecnico di Milano
Italy

Dr Polycarpos Falaras
National Centre for Scientific Research, Demokritos
Greece

Dr Pablo Gago Ferrero
Institute of Environmental Assessment and Water Research (IDAEA-CSIC)
Spain

Prof. Shadi Hasan
Khalifa University
UAE

Invited Speakers

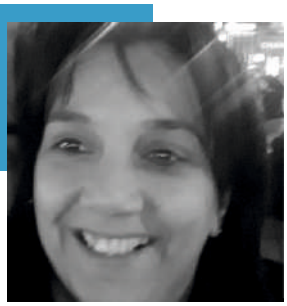
Prof. Carol Sze Ki LIN
City University of Hong Kong
Hong Kong

Dr Elena López-Gunn
ICATALIST
Spain

Prof. Gerasimos Lyberatos
National Technical University of Athens
Greece

Prof. Giorgio Mannina
University of Palermo
Italy

Prof. Vincenzo Naddeo
University of Salerno
Italy



Prof. Maria Papadopoulou
National Technical University of Athens
Greece

Dr Ioannis Skiadas
Technical University of Denmark
Denmark

Prof. Nikolaos Thomaidis
National & Kapodistrian University of Athens
Greece

Dr Costas Velis
Imperial College London
UK

Dr Paola Verlicchi
University of Ferrara
Italy

Dr Christos Vlachokostas
Aristotle University of Thessaloniki
Greece

1 Opening Ceremony

Wednesday 3 September 2025, Room Panacea, 17:00

The agenda of the opening session comprises of:

- Welcome speeches
- Welcome speech and practical information about the conference from Demetris F. Lekkas (CEST2025 chair)
- Recognizing Innovation, Dr David Solomon Jalajel, Prince Sultan Bin Abdulaziz International Prize for Water (PSIPW)
- Climate Change, Water Scarcity and Emerging Contaminants: Global Vision and Local Solutions in the Mediterranean Region: The Need for Advanced Water Treatment and Reuse, Prof. Damia Barcelo
- Resilience by design through water and nature: levers for change in the current policy landscape, Dr Elena Lopez-Gunn

Cocktail reception at 19:30 at **Kipriotis Village Resort** (conference venue)

2 Energy recovery from waste

Workshop

Thursday 4 September 2025, Room Panacea, 11:30

The session explores innovative strategies for transforming agricultural and industrial residues into energy, advanced fuels, and value-added bioproducts. Utilizing insights from the BioFairNet project (https://biofairnetproject.eu/), it highlights how advanced green technologies and digital tools are supporting circular and bioeconomy transitions in carbon-intensive regions. It underscores how waste valorization technologies can reduce emissions while fostering local economic resilience. Energy-from-waste can be a pillar of the green and just transition, aiming to empower communities and bridge digital and socio-economic divides.

BIOFAIRNET

Funded by the European Union

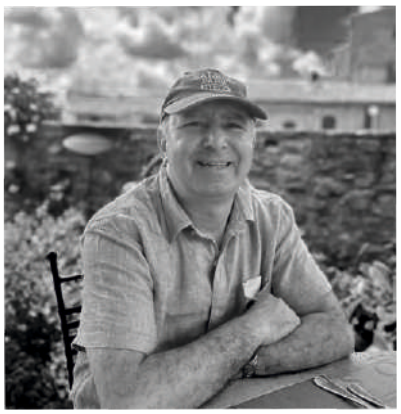
This project has received funding from the European Union's Horizon Europe under Grant Agreement N° 101181568.

3 Advanced Oxidation Processes - In Memory of Prof. Dionysios D. Dionysiou

Special Tribute Session

Friday 4 September 2025, Room Aegle B, 9:00

At CEST2025, the Advanced Oxidation Processes (AOPs) session will be dedicated to the memory of Prof. Dionysios (Dion) D. Dionysiou (1968–2023) - a pioneer in environmental engineering, a global leader in water treatment technologies, and a valued member of the CEST Organizing and Scientific Committee for many years.



A few words about Prof. Dionysiou

Dionysios (Dion) Dionysiou was a visionary scientist, mentor & philanthropist, who believed that access to safe drinking water should be a global right, regardless of geography, social status, or financial means. For nearly three decades, he dedicated his career to advancing water purification & disinfection technologies, particularly through the development of innovative advanced oxidation processes.

Prof. Dionysiou earned his Bachelor's degree in Chemical Engineering from the National Technical University of Athens (1991), followed by a Master's degree from Tufts University (1995) & a Ph.D. in Environmental Engineering from the University of Cincinnati (2000). He served for 23 years at the University of Cincinnati, mentoring students, faculty, and scholars worldwide. His research addressed a broad spectrum of topics, including water treatment, advanced oxidation technologies, sustainable water processes, environmental nanotechnology, and the removal of biological and chemical contaminants. His 2023 publication in Water Journal reflects his extensive contributions to the field.

He authored over 600 peer-reviewed publications and delivered more than 600 invited talks in +50 countries. From 2018 to 2022, he was consistently recognized as a Highly Cited Researcher by Web of Science in Engineering, Environment & Ecology, and Chemistry. Prof. Dionysiou also held leadership roles in the ACS Division of Environmental Chemistry, supporting early-career, female, and international researchers. He served as UNESCO Co-Chair Professor on "Water Access and Sustainability" (2013–2017) and received numerous honors, including the 2014 AEESP Frontier in Research Award, the 2017 AEESP Distinguished Service Award, and the 2022 Prince Sultan Bin Abdulaziz International Prize for Water (PSIPW) Creativity Prize, awarded jointly with his students.

O'Shea, K.E., Antoniou, M.G. Dionysios (Dion) Demetriou Dionysiou (1966–2023). Nat Water 2, 104–105 (2024). https://doi.org/10.1038/s44221-024-00204-x

Text authored by Dr Maria Antoniou, Associate Professor at the Department of Chemical Engineering of the Cyprus University of Technology (CUT)

4 Advancing Climate Resilience through Engagement of Citizens: Insights from the CLIMAS Project

Workshop

Friday 5 September 2025, Room Aegle A, 11:30

This workshop will showcase key findings and tools developed within CLIMAS project (www.climas-project.eu/). The ambition of the CLIMAS project is to support the transformation to climate resilience by offering an innovative problem-oriented climate adaptation toolbox, co-designed together with stakeholders by applying a value-based approach, design thinking methods and citizen science mechanisms. The workshop mainly aims to:

- Present the CLIMAS project vision and initiatives developed for the enhancement of citizens' participation in decision-making
- Explore the CLIMAS Toolbox
- Introduce participants to the citizen-collaborative future scenario-building methodology.
- Present the evaluation approach for monitoring the performance and impact of Climate Assemblies.

The expected outcomes include:

- Increased understanding of participatory tools for climate resilience
- Exchange of experiences and insights on best practices
- Strengthening collaboration among stakeholders in climate policy and engagement

CLIMAS
CLIMAte change citizens engagement toolbox for dealing with Societal resilience

Funded by the European Union

This project has received funding from the European Union's Horizon Europe under Grant Agreement N° 101094021.

5 Analysis of microplastics in water

Short course

Friday 5 September 2025, Room Aegle B, 17:00

This course (delivered by Prof. Damià Barceló) is structured in 4 parts as follows:

- **Part 1** will introduce the participants to the global pollution macro-plastic litter from rivers, sludge, soils, groundwaters and landfills to the sea
- **Part 2** will explore sampling, extraction and analyis tools and processes
- **Part 3** will delve into ecotoxicology and human health risks
- **Part 4** will suggest remediation technologies and sustainable management solutions

Important notice: Attendance on the course is free of charge for CEST2025 registered participants

6 Environmental Impact of Maritime Transport – NAVGreen

Special Session

Saturday 6 September 2025, Room Aegle A, 11:30

This session will be dedicated to exploring the environmental impacts of maritime transport, highlighting legislative, policy, and technological solutions to mitigate them. Within this context, the NAVGreen project - an emblematic initiative aiming to reduce the environmental footprint of shipping - will be presented. The session will address a broad spectrum of topics related to the environmental footprint of maritime activities.

7 Micropollutant Removal and Circular Water Reuse: Challenges and Opportunities under the Revised Urban Wastewater Treatment Directive

Special Session

Saturday 6 September 2025, Room Aegle B, 15:30

The session (coordinated by Dr Paola Verlicchi - University of Ferrara, Italy) aims to gather researchers, water professionals, technology developers, and policymakers to share knowledge, tools, and experiences in the monitoring, removal, and risk assessment of micropollutants within the framework of urban wastewater reuse and circular economy principles.

8 UrbanWaterSECURITY Academy (UWSA)

Tuesday 3 to Friday 6 September 2025 (in parallel with CEST2025)

The International Academy in **UrbanWaterSECURITY** is an intensive training opportunity open to Master's and PhD students, post-docs, and young researchers. Urban water security is characterized by complex, so-called wicked, problems where traditional assumptions of causality and predictability may not apply. The fundamental importance of better connections between science, policy and society provides new demands on candidates, who are increasingly expected to possess not only a deep knowledge of their own discipline but are additionally capable of placing that knowledge in a wider understanding of societal needs. The Urban water security is one of the most important and priority issues to be resolved for both current and next generations.

The fourth edition of the **UrbanWaterSECURITY Academy** will be held on the island of Kos, Greece, from September 3 to 6, 2025, in conjunction with CEST2025. This year's Academy is organized by **the Waste Management Laboratory (Department of Environment, University of the Aegean, Greece)**, in cooperation with the

Sanitary Environmental Engineering Division (SEED) of the University of Salerno (Italy). The lectures are included in the CEST2025 daily programme.
The training includes lectures by Leading Experts, hands-On Workshops and discussions and Q&A sessions.

Important notice: Attendance at the Academy is free of charge for CEST2025 registered participants and a certificate will be provided

9 Conference dinner

The conference dinner will be held on Saturday 6 September at 21:00.
More details will be provided to you during the conference.
Entrance is free for registered delegates, while the accompanying people can purchase vouchers at the secretariat desk.

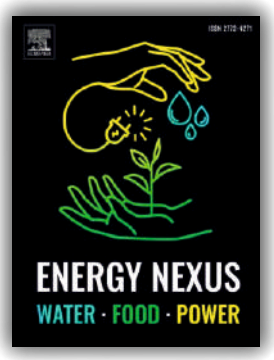
Proceedings & Publication of Papers

All the papers presented at the conference will be published in CEST proceedings (ISSN 2944-9820). The documents will be assigned a DOI number as soon as they are published and they will be available online.

Papers presented in CEST2025, will be submited for review in the cooperating journals for inclusion in special issues.

CHEMICAL ENGINEERING JOURNAL

WASTE MANAGEMENT AND RESEARCH



ENERGY NEXUS

GLOBAL NEST JOURNAL

EURO-MEDITERRANEAN JOURNAL FOR ENVIRONMENTAL INTEGRATION

CLEAN WATER AND SANITATION

EVENT

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