



## SESSIONS & SCIENTIFIC PROGRAM

### CALL FOR ABSTRACTS/PAPERS

#### 7th International Symposium on Materials, Electrochemistry and Environment (CIMEE 2025)

**September 25– 27, 2025 | Lebanon**

The 7th International Virtual Conference on Materials Chemistry, Electrochemistry and Environmental Analytical Chemistry, invites participants from around the globe to engage in a collaborative environment dedicated to novel research, technology, and applications in the field. This conference is designed to unite experts in Materials Chemistry, Electrochemistry and Environmental Analytical Chemistry, as well as related disciplines such as AgroGeochemistry, Agroenvironment, Biowaste/bioenergy, physical chemistry, biological chemistry and green chemistry. Attendees will have the opportunity to connect, share ideas, and exchange the latest research results and advanced methods in these areas.

Organized by Lebanese university and 5 universities in Middle East, Europe and North Africa, this virtual event will feature a range of engaging activities, including plenary/keynote sessions, oral presentations, and poster presentations. Participants will have the chance to network with researchers from various institutions, universities, laboratories, and industries, fostering discussions and insights that can propel scientific discoveries. The conference aims to provide a platform for sharing knowledge and expanding research collaborations, making it a unique opportunity for professionals in the field to enhance their understanding and explore new approaches in Materials Chemistry, Electrochemistry and Environmental Analytical Chemistry.

#### Technological innovation in promoting environmental sustainability

Humans have ingeniously exploited all natural resources in various ways to meet the needs of a constantly growing population. In doing so, we are unwittingly reducing the fundamental niche of other life forms. Currently, the global ecological footprint is 1.75, meaning that humanity is using nature 1.7 times faster than our planet's biocapacity can regenerate. Human activities have put considerable pressure on natural resources and exacerbated environmental problems such as biodiversity loss, habitat degradation, and climate change. These challenges are linked to global energy production and use. Innovation stands as a cornerstone in the pursuit of sustainable resource use, offering creative solutions to overcome challenges associated with resource depletion and environmental degradation. Technological innovation introduces advancements that enable more efficient resource utilization, from renewable energy technologies to sustainable materials and circular economy practices.

Moreover, there is need for clarity on the role of natural resources and technology in achieving Environmental sustainability.

Environmental sustainability is indeed a major global issue, prompting nations to cooperate to reduce environmental degradation. This involves concerted efforts to preserve natural resources and mitigate negative impacts on ecosystems, thus ensuring a viable future for future generations.

Key solutions: Innovation in natural resource use, the circular economy, low carbon energy and agriculture are all interconnected approaches for sustainable development. The circular economy model, in particular, offers a framework for optimizing resource use, reducing waste, and promoting sustainable practices across various sectors. This includes transitioning to low-carbon energy sources, developing innovative agricultural practices, and rethinking how we design, produce, consume, and manage resources. These areas are crucial for addressing global challenges like climate change, resource depletion, and pollution.

In this sense, this series of sessions (major session and special sessions) aims to encourage researchers to submit their work on the one hand and to explain on the other hand, how to manage resources sustainably by examining the links between the circular economy, the preservation of natural capital, low-carbon energies, international collaboration and societal well-being. The objective is to promote a use of resources that is both efficient and respectful of the environment, emphasizing the importance of harmony between human activity and the planet.

There will be a General/Major Session with speakers from different areas, as well as several Special Sessions in specific subjects. You can submit a paper to the general session or to any of the Special Sessions.

## I – General/Major sessions

- S1: The role of electrochemical technology in environmental sustainability
- S2: Electrochemistry technology to achieving a sustainable environment.
- S3: Nanobiosensors for Environmental Monitoring: Recent Advances and Perspectives
- S4: Advances in Electrochemical Nano-Biosensors for Agricultural and Environmental Applications
- S5: Advancements in CCU technologies and innovations as key solution for mitigating climate change
- S6: Sensor technologies for detecting pesticides and emerging pollutants in environmental samples
- S7: Biotechnological Innovations to Achieve Carbon Neutrality
- S8: Urban air quality: towards innovative sensor technologies and the potential use of artificial intelligence
- S9: CCU electrochemical technologies: the potential role of in mitigating climate change, DACCS, BECCS technologies
- S10: Towards the goal of achieving zero emissions: Exploring the future potential of emerging CCUS technologies

### Circular Economy, Biotechnologies & Sustainable agriculture

- S11: The circular economy as effective tools to develop a sustainable and resilient Mediterranean agricultural system
- S12: Innovations in agricultural biotechnologies: the crucial role in the transition to a sustainable bioeconomy
- S13: Sustainable agriculture in the face of severe climate change in the Mediterranean: an overview
- S14: Climate change in Mediterranean region: Compost-Biochar in agroecosystems to enhancing soil fertility & olive trees productivity
- S15: Synergistic benefits of combining compost and biochar: olive trees and climate change
- S16: Zero waste on both shores of the Mediterranean: Environmental and economic challenges
- S17: Recent and sustainable thermochemical technologies for converting waste biomass into biochar
- S18: Biochar as promising material for carbon storage and agricultural sustainability

### Agri-food system & Climate Change

- S19: Agricultural Biotechnology and Climate Change -Creating a more sustainable world
- S20: New and emerging technologies to combat the effects of climate change
- S21: Sustainable food system: accelerating the ecological transition on mediterranean region
- S22: Innovative solutions to improve the resilience of agri-food systems in the face of climate change.
- S23: Sustainable Food and Ecological Transition: The Triple Planetary Challenge
- S24: Global waste: a central role in the issue of planetary boundaries

### Biowaste & Bioenergy

- S25: New innovation approaches to support the decarbonization of the wastewater sector and carbon neutrality
- S26: Towards Sustainable Treatment and Reuse of Wastewater in the Mediterranean Region
- S27: Production of Green Hydrogen: as a promising solution for decarbonising wastewater sector.
- S28: Accelerating the decarbonization of the wastewater sector: innovative solutions in climate change mitigation
- S29: Decentralized, nature-based solutions and Circular Economy approaches to improve water governance for long-term sustainability
- S30: Green hydrogen production from wastewater A new technology to tackle climate change
- S31: Hydrogen production from biomass and waste: Advanced conversion technologies and sustainability
- S32: Accelerated the viability of Hydrogen production: Technological advancements

## II - Special sessions

### Serie 1

- SS 1: Pre-conference Workshops (PCWs): Electrochemistry & Environmental Sustainability, Wednesday, September 24, 2025
- SS 2: Urban air quality: towards innovative sensor technologies and the potential use of artificial intelligence
- SS 3: The circular economy as effective tools to develop a sustainable
- SS 4: Innovative Technologies for Sustainable Environment : the potential role of Biological remediation
- SS 5: Improving water governance for long-term sustainability by integrating decentralized systems, nature-based solutions (NBS), and circular economy approaches.
- SS 6: Climate change in Mediterranean region: Compost-Biochar in agroecosystems to enhancing soil fertility and olive trees production
- SS 7: Improving food security and reducing the environmental impact of agriculture: the role of Technological solutions
- SS 8: Innovations in agricultural biotechnologies: the crucial role for the transition to a sustainable bioeconomy.

### Serie 2

- SS. 1: Advanced materials for Energy Decarbonization and Sustainability.
- SS. 2: Sustainable materials innovations: novel technologies for clean energy generation
- SS. 3: Exploring innovative technologies to maximize biomethane production: a real key to the future energy transition
- SS. 4: Chemical hydrogen storage using the LOHC process: New technological solutions
- SS. 5: Environmental Metallomics : between essential & toxic metals within biological systems

### Serie 3

- SS 1: Sustainable materials innovations & novel technologies for clean energy generation.
- SS 2: Quantum materials: The Potential for Advancing Environmental Sustainability
- SS 3: Advances in Nanotechnology for Carbon Capture & Environmental Sustainability
- SS 4: New Innovations in Nanotechnology for Environment, Agriculture, Food, and Energy sector
- SS 5: Agricultural chemistry: developing innovative solutions to Achieving Sustainability in the Agro-Environment