

Graduate School 2026 du Groupe Français de Bioélectrochimie (GFB)

Title:

Advancing Global Health through Bioelectrochemistry: From Sustainable Bioproduction to Environmental and Biomedical Monitoring

Topics & Program

Learning Objectives: This Graduate School aims to provide advanced, interdisciplinary training to educate a new generation of researchers capable of designing, characterizing, and optimizing bioelectrochemical systems related to current societal challenges. The objective is to deepen fundamental knowledge in electrochemistry in order to drive innovation in the two main domains of planetary health: human health and the environment.

Targeted Competencies:

- Understand how bioelectrochemistry can contribute to environmental and medical monitoring.
- Explore living–electrode interfaces within an eco-design framework.
- Learn to design sustainable devices, from materials to processes.
- Promote translational innovation in bioelectrochemistry, from the fundamental understanding of biological signals to the development of diagnostic and therapeutic tools.
- Foster transdisciplinarity among chemists, biologists, engineers, and ecologists.
- Raise awareness of life-cycle issues, carbon footprint, and circular economy considerations in research.

Date : *From September 13th 6 :00 pm to September 16th 2:00 pm*

Location :

Village Club Igesa
Rue de la Douane
Île de Porquerolles
83 400 HYÈRES



Session 1 – Analytical Foundations in Bioelectrochemistry

1. From basics to advanced Electrochemical Technics:

- **Frédéric Lemaitre**, Ecole Normale Supérieure, Sorbonne Université, Paris.

2. Analytical electrochemistry, detection limit and signal optimization.

- **Benoit Limoges**, ITODYS, Université Paris Cité, Paris.

Session 2 – Biotechnology for Sustainability

1. Bioelectrochemical Systems: Sustainable Solutions for Waste and Wastewater Management

- **Benjamin Erable**, Laboratoire de Génie Chimique, CNRS, Toulouse INP, Université de Toulouse

2. Harnessing the metabolic properties of environmental microbiomes with electrochemical technologies for the bioeconomy".

- **Théodore Bouchez** – Université Paris-Saclay, INRAE, PROSE, 92160 Antony, France.

3. Harnessing Enzymatic Fuel Cells for Sustainable Energy: Fundamentals, Applications, and Challenges.

- **Elisabeth Lojou**, Laboratoire de Bioélectrochimie et Biocapteurs, Aix-Marseille Université

Session 3 - Advances in Bioelectrochemistry: Sensors and Interfaces for Health

1. Miniaturized Biosensors and Portable Health Technologies

- **Pascal Mailley** – CEA Leti Grenoble

2. From Wearable and Skin-Compliant Biosensing approaches to signal capture and processing,

- **Esma Ismailova** – Ecole des Mines St Etienne

3. Electrochemical Aptasensors for Sensitive Detection of Bacterial Spores

- **Jasmina Vidic** : INRAE, AgroParisTech, Université Paris-Saclay

4. Networked Biosensors and Bioelectrochemical Signal Processing

- **Evangéline BENEVENT**, Institut Matériaux Microélectronique Nanosciences de Provence, Aix-Marseille Université

Collaborative Workshop

Prospective Hackathon – Bioelectrochemistry for Global Health 2035

Objective : To engage school participants in a hands-on, collaborative exercise where they envision and design innovative bioelectrochemical solutions for global health challenges. The workshop will encourage strategic thinking, interdisciplinary collaboration, and futuristic problem-solving.