

## 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.

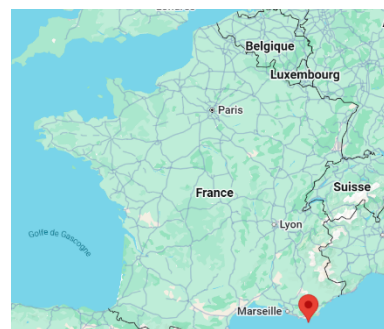
### Targeted Competencies:

- 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 13<sup>th</sup> 6:00 pm to September 16<sup>th</sup> 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. Pushing the Boundaries of (Bio)Analytical Electrochemistry: Sensitivity, Performance, and Fundamental Limits.

- **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 electrochemical (bio)sensors : from Microfluidic integration to organ-on-chip and lab-on-skin

- **Pascal Mailley**– CEA Leti Grenoble

### 2. From Wearable and Skin Compliant Biosensing to bio-potential signal processing.

- **Esma Ismailova** – Ecole des Mines St Etienne, Department of Bioelectronics, Campus Georges Charpak Provence, Gardanne

### 3. Electrochemical Aptasensors for Sensitive Detection of Bacterial Spores

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

### 4. From the sensor's output signal to wireless data transmission: a global perspective

- **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.