

Special Issue

Advanced Electrochemical Sensors for Environmental Monitoring

Message from the Guest Editor

Electrochemical sensors are rapidly evolving into important tools for environmental monitoring, driven by advances in materials science and, more recently, artificial intelligence. Current research focuses on developing sensors with greater sensitivity, selectivity, stability, and the possibility of miniaturisation for the detection of trace levels of contaminants such as heavy metals, pesticides, pharmaceuticals, and microplastics in complex environmental matrices. The field is rapidly progressing toward more robust, green, and intelligent sensing systems can provide comprehensive, real-time insights into environmental quality. The integration of nanomaterials—including graphene, carbon nanotubes, and metal nanoparticles—has significantly enhanced electron transfer and surface reactivity, improving analytical performance. This Special Issue welcomes contributions that explore novel sensing materials such as RuO₂-based electrodes and nanostructured composites, alongside machine learning techniques for signal processing. Emphasis will be placed on systems capable of real-time and in situ monitoring, autonomous calibration, and integration with wireless networks or IoT platforms.

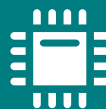
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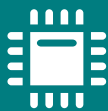


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Message from the Editor-in-Chief

Sensors is a leading journal devoted to fast publication of the latest achievements of technological developments and scientific research in the huge area of physical, chemical and biochemical sensors, including remote sensing and sensor networks. Both experimental and theoretical papers are published, including all aspects of sensor design, technology, proof of concept and application. Sensors organizes Special Issues devoted to specific sensing areas and applications each year.

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