Special Issue

Advances in Electrochemical Sensors: Materials Design, Functionalization, and Applications

Message from the Guest Editors

Electrochemical sensors are powerful analytical tools offering rapid, selective, and cost-effective detection. They play a crucial role in addressing global challenges related to environmental monitoring, healthcare diagnostics, and food safety. Recent progress in materials design, functionalization, and nanostructuring has opened new pathways to significantly improve sensor performance in terms of sensitivity, selectivity, stability, and reproducibility.

Topics of interest include (but are not limited to) the following:

- Novel materials design and nanostructures for electrochemical sensing.
- Functionalized electrodes and interface engineering strategies.
- Surface modification and hybrid nanomaterials for enhanced selectivity.
- Fabrication, integration, and miniaturization of electrochemical sensors.
- Applications in pollutant detection, water and air quality monitoring.
- Electrochemical biosensors for medical diagnostics.
- Flexible, wearable, and implantable electrochemical devices.
- Fabrication, printing, and scalable manufacturing of electrochemical sensors.
- Data analysis, signal processing, and AI integration in electrochemical sensing.

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