Sensors and Materials

Special Issue on Biosensing Devices

Call for Papers

Biosensing technology has become increasingly pivotal in a wide range of fields, including personalized medicine, point-of-care diagnostics, environmental monitoring, food safety, and wearable healthcare. Recent advancements in materials science, sophisticated micro- and nanofabrication techniques, and the integration of AI are accelerating the development of novel biosensing devices that overcome the limitations of conventional technologies, offering unprecedented sensitivity, selectivity, and rapidity. This "Special Issue on Biosensing Devices" aims to provide a prominent platform for disseminating the latest research achievements and future perspectives in this innovative field. We invite submissions of high-quality original research articles and review papers covering a broad spectrum of topics, from fundamental principles to practical applications. This special issue will encompass molecular recognition elements, transducer technologies, system integration, and various efforts toward commercialization. We believe this collection of articles will significantly advance this rapidly evolving research community.

Scope:

・New detection mechanisms based on electrochemical, optical, piezoelectric, and field-effect transistor (FET) principles
・Applications of advanced nanomaterials (e.g., graphene, carbon nanotubes, quantum dots, metallic nanoparticles)
・ Functional polymers, biomaterials, aptamers, and synthetic antibodies for molecular recognition
・ Wearable, implantable, and ingestible sensors
・ Microfluidic devices and Lab-on-a-Chip (LoC) systems
・ Point-of-Care Testing (POCT) devices for rapid diagnostics
・ Noninvasive and minimally invasive sensing technologies
・ Clinical diagnostics and liquid biopsy (e.g., detecting exosomes, ctDNA, or biomarkers)
・ Real-time monitoring of pathogens (e.g., viruses, bacteria)
・ Environmental monitoring (e.g., water quality, air pollutants)
・ Food safety and quality control
・ Drug discovery and high-throughput screening
・ Related technologies such as AI and machine learning for sensor data analysis and pattern recognition, integration with mobile health (mHealth) and IoT platforms, power sources and wireless communication for sensing systems, and strategies for scalable manufacturing and commercialization of biosensors

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