Special Issue

Advances in Surface Plasmon Resonance Biosensors

Message from the Guest Editors

Surface Plasmon Resonance (SPR) affinity biosensors are powerful tools for real-time monitoring of molecular interactions. They operate by detecting changes in the refractive index (RI) caused by the binding of a ligand in solutions of a bioreceptor (e.g., antibodies, oligonucleotides) immobilized on a thin metal surface, typically gold (up to 50 nm thick). The unique capabilities of SPR biosensors have driven innovations in several fields, including food safety and quality control, environmental analysis and monitoring of contaminants, and drug discovery and disease diagnostics, with biomarker detection being used for prompt medical intervention. Furthermore, recent advancements have integrated SPR technology into portable bioanalytical systems, such as plasmonic optical fiber or lab-on-a-chip devices, broadening its accessibility for on-site applications or point-of-care diagnostics. This Special Issue addresses the combination of precision, flexibility, and portability of SPR technology for biosensing applications.

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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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