

Special Issue

Terahertz Biophotonics: Advancing Biosensing Technologies

Message from the Guest Editors

Terahertz (THz) biophotonics has emerged as a transformative frontier at the interface of photonics, biomedicine, and materials science, offering label-free, non-ionizing, and high-sensitivity detection capabilities for probing biomolecular dynamics, cellular activities, and tissue microstructures. This Special Issue aims to extend the scope of terahertz spectroscopy-based biosensing into the broader domain of terahertz biophotonics, with a particular emphasis on innovative sensing platforms, advanced photonic devices, and emerging applications in disease diagnosis, drug monitoring, and precision medicine. We invite contributions encompassing, but not limited to, the development of metamaterial-assisted THz biosensors, microfluidic integration, THz near-field imaging, quantum cascade laser-based sensing systems, machine learning-enhanced spectral analysis, and in vitro/in-vivo biological detection. By bringing together cutting-edge research across physics, engineering, and life sciences, this Special Issue seeks to foster interdisciplinary collaboration and accelerate the translation of THz biophotonics technologies from proof-of-concept to practical biosensing solutions.

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Deadline for manuscript submissions

25 January 2027



Biosensors

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by MDPI

Impact Factor 6.2
CiteScore 12.1
Indexed in PubMed



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Message from the Editor-in-Chief

Biosensors is a leading journal, devoted to fast publication of the latest achievements, technological developments and scientific research in the exciting multidisciplinary area of biosensors. Both experimental and theoretical papers are published, including all aspects of biosensor design, technology, proof of concept and application. Special issues are devoted to specific technologies and applications, and a selection of the most outstanding papers each year is recognized. Pushing the boundaries of the discipline, we invite original papers, as well as timely reviews on cutting edge fields within the subject area.

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