Special Issue

Next-Generation Semiconductor-Based Nanophotonic Sensors for Applied Technologies

Message from the Guest Editor

Cutting-edge developments in semiconductor and nanophotonic technologies are transforming the landscape of next-generation sensors. These advances are driving innovation in compact, high-speed, and energy-efficient sensors tailored for a wide range of applied technologies. This Special Issue focuses on the development and implementation of semiconductor-based nanophotonic sensors, highlighting the role of emerging materials, device architectures, and fabrication strategies in advancing sensor performance. Emphasis is placed on semiconductor platforms that enable enhanced light–matter interaction at the nanoscale, supporting ultra-sensitive, fast, and spectrally tunable detection. We welcome contributions that explore experimental breakthroughs, fabrication techniques, modelling strategies, and the real-world deployment of these technologies. The aim is to highlight progress that bridges the gap between fundamental science and practical optoelectronic solutions, setting the stage for the next generation of photonic sensor innovation.

Guest Editor

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Deadline for manuscript submissions

31 January 2026

Sensors

an Open Access Journal by MDPI

Impact Factor 3.5
CiteScore 8.2
Indexed in PubMed

mdpi.com/si/241328

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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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