Special Issue

Next-Generation Diagnostics for Infectious Diseases: Microfluidics, BioMEMS for Pathogen Detection and Antimicrobial Susceptibility Testing

Message from the Guest Editors

Infectious diseases cause over four million deaths annually (WHO), with antimicrobial resistance (AMR) posing a growing global health threat. Conventional diagnostics fall short: culture-based methods miss many unculturable pathogens, while molecular tools like PCR cannot differentiate between live and dead microbes. These limitations hamper effective monitoring of water, food safety, and timely clinical decisions. Microfluidics and BioMEMS technologies offer transformative solutions by integrating pathogen enrichment, viability testing, and antimicrobial susceptibility assays into compact platforms. Advances in multiplexed biosensing, AI-driven analysis, and portable design make these tools especially valuable in resource-limited settings. This Special Issue invites original research and reviews on emerging technologies in pathogen detection, including:

- Novel sensing mechanisms;
- Microfluidic systems (droplet-based, lab-on-disc, paper-based assays);
- BioMEMS devices (impedance arrays, mechanical sensors);
- AI-enhanced diagnostics;
- Multidisciplinary applications (wearable sepsis monitors, AMR surveillance, outbreak tracking).

Join us in shaping the future of infectious disease diagnostics.

Guest Editors

Prof. Dr. Wei Wang
Dr. Yaoping Liu
Dr. Shitao Shen

Deadline for manuscript submissions

5 October 2026

Sensors

an Open Access Journal by MDPI

Impact Factor 3.5
CiteScore 8.2
Indexed in PubMed

mdpi.com/si/250171

Sensors
Editorial Office
MDPI, Grosspeteranlage 5
4052 Basel, Switzerland
Tel: +41 61 683 77 34
sensors@mdpi.com

mdpi.com/journal/sensors

Sensors

an Open Access Journal by MDPI

Impact Factor 3.5
CiteScore 8.2
Indexed in PubMed

mdpi.com/journal/sensors

MDPI

About the Journal

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.

Editor-in-Chief

Prof. Dr. Vittorio M. N. Passaro
Department of Electrical and Information Engineering, Politecnico di Bari, Via Orabona 4, 70126 Bari, Italy

Author Benefits

Open Access:

free for readers, with article processing charges (APC) paid by authors or their institutions.

High Visibility:

indexed within Scopus, SCIE (Web of Science), PubMed, MEDLINE, PMC, Ei Compendex, Inspec, Astrophysics Data System, and other databases.

Journal Rank:

JCR - Q2 (Instruments and Instrumentation) / CiteScore - Q1 (Instrumentation)