

Special Issue

Advances in Aptamer-Based Sensors: Innovations in Design, Applications, and Analytical Performance

Message from the Guest Editor

Aptamers, often called "chemical antibodies," have transformed biosensing with their high specificity, affinity, stability, and ease of synthesis. This Special Issue of *Sensors* focuses on recent advances driving aptamer-based sensor technology. We invite innovative contributions on novel aptamer selection (SELEX) strategies, signal transduction mechanisms, surface immobilization techniques, nanomaterial or CRISPR/Cas integration, and computational design. Submissions may explore applications in clinical diagnostics (e.g., point-of-care, pathogens), environmental monitoring (toxins, contaminants), food safety, and security. Emphasis should be placed on improvements in analytical performance—sensitivity (attomolar to picomolar), selectivity, multiplexing, robustness, real-time detection, and validation in complex matrices. This Issue aims to be a key resource for advancing aptamer-based tools from lab to real-world use. Both original research and reviews are welcome.

Guest Editor

Dr. Tianhuan Peng

Molecular Science and Biomedicine Laboratory (MBL), State Key Laboratory of Chemo/Biosensing and, Chemometrics, College of Chemistry and Chemical Engineering, Hunan University, Changsha 410082, China

Deadline for manuscript submissions

10 April 2026



Sensors

an Open Access Journal
by MDPI

Impact Factor 3.5
CiteScore 8.2
Indexed in PubMed



mdpi.com/si/247388

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

[mdpi.com/journal/
sensors](https://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](https://mdpi.com/journal/sensors)



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

Dipartimento di Ingegneria Elettrica e dell'Informazione (Department of Electrical and Information Engineering), Politecnico di Bari, Via Edoardo Orabona n. 4, 70125 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)