

Special Issue

Emerging Innovations in Hyperspectral Imaging: Experimental Technologies, Chemometrics, and AI

Message from the Guest Editor

In optical spectral sensing and imaging, spatial information is combined with spectroscopy to create versatile tools for science and industry. Progress is increasingly driven by experimental advances in hyperspectral imaging (HSI). Improvements in detector sensitivity, optical components, and illumination concepts have enabled faster acquisition, higher resolution, and more robust setups. Compact, application-specific HSI modules are moving from laboratory prototypes to field-ready and clinical systems. New hardware developments—such as miniaturized spectrographs, tunable filters, and integrated sensor chips—extend the applicability of HSI to real-time quality control, biomedical diagnostics, and environmental monitoring. Chemometrics and artificial intelligence (AI) provide essential tools for extracting meaningful information, supporting the transition of HSI from experimental systems to routine analytical solutions. This Special Issue focuses on the applications and technological evolution of spectral imaging, highlighting experimental breakthroughs in sensors and imaging setups, advanced data analysis methods, and cross-disciplinary case studies.

Guest Editor

Prof. Dr. Marc Brecht

1. Process Analysis & Technology, Reutlingen Research Institute, Reutlingen University, Alteburgstraße 150, 72762 Reutlingen, Germany
2. Institute of Physical and Theoretical Chemistry, University of Tübingen, Auf der Morgenstelle 18, 72076 Tübingen, Germany

Deadline for manuscript submissions

31 December 2026



Sensors

an Open Access Journal
by MDPI

Impact Factor 3.5
CiteScore 8.2
Indexed in PubMed



mdpi.com/si/254637

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
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)