Special Issue

SPAD-Based Sensors and Techniques for Enhanced Sensing Applications

Message from the Guest Editors

The integration of Single-Photon Avalanche Diodes in standard CMOS processes (CMOS-SPADs) provides unique advantages over other single-photon detection technologies. CMOS SPADs can be arranged into 1 or 2D arrays of channels working in parallel and inherit all the advantages of CMOS technology, such as compact size and a wide temperature operating range. For these reasons, CMOS-SPADs are now replacing other single-photon technologies in many time-resolved and other enhanced sensing applications, including depth sensing/LiDAR, medical imaging (FLIM, Raman spectroscopy, PET), high dynamic range imaging and quantum sensing (e.g., super-resolution microscopy, ghost imaging, non-line-of-sight imaging). This Special Issue addresses recent advancements in the following areas:

- CMOS-SPAD architectures for enhanced sensing applications.
- Innovative techniques for the processing of data generated by CMOS-SPAD architectures.
- Circuits for CMOS-SPAD sensors (e.g., time-to-digital converters, DCDC converters).
- Experimental activity using CMOS-SPADs.

Guest Editors

Dr. Leonardo Gasparini

Fondazione Bruno Kessler, Center for Sensors & Devices, Integrated Readout ASICs & Image Sensors, Via Sommarive 18-Povo, 38123 Trento, Italy

Dr. Alessandro Tontini

Fondazione Bruno Kessler, Via Sommarive 18, 38123 Trento, Italy

Deadline for manuscript submissions

25 September 2025

Sensors

an Open Access Journal by MDPI

Impact Factor 3.5
CiteScore 8.2
Indexed in PubMed

mdpi.com/si/216610

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

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)