

Sensors and Materials

Special Issue on Advanced Sensor Application Development

Call for Papers

The rapid advancement of sensor technologies has enabled transformative applications across a wide range of fields, including intelligent manufacturing, biomedical engineering, environmental monitoring, innovative infrastructure, energy systems, and the Internet of Things (IoT). Beyond material innovation and device fabrication, the development of advanced sensor applications—encompassing system integration, signal processing, performance validation, and real-world deployment—has become a critical driver for technological impact.

This special issue focuses on advanced sensor application development, emphasizing how sensor technologies are translated from laboratory concepts into functional systems and practical applications. Topics of interest include application-oriented sensor design, sensor–system co-development, multisensor integration, data interpretation, and application-level performance evaluation. Contributions addressing sensors operating under complex environments, extreme conditions, or application-specific constraints are particularly encouraged.

The scope of this issue covers a broad range of sensor types and application domains, highlighting interdisciplinary approaches that combine materials science, mechanical engineering, electronics, data analytics, and system engineering. Both experimental and theoretical studies that demonstrate clear application relevance, system-level validation, or prototype implementation are welcome. Through this special issue, we aim to showcase recent progress and emerging trends in sensor application development that bridge fundamental research and real-world use.

Scope:

- Advanced sensor application design and development
- Sensor system integration and validation
- Application-oriented sensor performance evaluation
- Multifunctional and multisensor systems
- Sensors for intelligent manufacturing and Industry 4.0
- Sensors for robotics, automation, and human–machine interaction
- Sensors for biomedical, healthcare, and wearable applications
- Sensors for environmental monitoring and smart infrastructure
- Sensors for energy systems and harsh or extreme environments
- Signal processing, data fusion, and application-driven sensing strategies
- AI/data-driven sensing

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If you have any questions, please feel free to contact the editorial staff at the address below.

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