

SPECIAL ISSUE ON SUSTAINABLE SENSOR MATERIALS, PROCESSES, AND APPLICATIONS, PART 1

PREFACE



The advancement of sustainable sensor technologies represents a crucial step toward achieving global environmental and technological goals. As industries move toward greener and smarter systems, there is an increasing demand for sensor materials and fabrication processes that are not only high-performing but also eco-friendly, energy-efficient, and compatible with circular economy principles.

Sensors developed from renewable or biodegradable resources, produced through environmentally benign processes, and applied in areas such as environmental monitoring, healthcare, energy management, and smart manufacturing, play an essential role in this transition.



This Special Issue on Sustainable Sensor Materials, Processes, and Applications Part 1 presents a collection of original research papers and review articles that highlight recent developments in the field. The contributions cover a wide range of topics, including the synthesis of bio-based and recyclable sensor materials, low-temperature and solvent-free processing techniques, and the integration of multifunctional features such as self-powering, self-healing, and biodegradability. Several groups also explore novel applications where sustainability and performance converge, providing valuable insights into next-generation sensing systems designed for long-term benefit to the environment and society.

The editors believe that the works featured in this issue will inspire further innovation in materials science, device engineering, and sustainable manufacturing strategies. The research presented here reflects the collective effort of the global scientific community to balance technological advancement with environmental responsibility.

We extend our deepest gratitude to all the authors for their excellent contributions, to the reviewers for their careful and constructive evaluations, and to the editorial team for their continuous support in bringing this issue to completion. We hope this Special Issue will serve as a useful reference for scientists, engineers, and professionals who are dedicated to developing sensor technologies that align with the principles of sustainability and resource efficiency.

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