Special Issue

Advanced Optical Fiber Sensors: Applications and Technology

Message from the Guest Editors

Optical fiber sensing has made remarkable progress in recent years and holds great promise for the future. Its ability to detect changes in temperature, strain, pressure, and various physical and chemical parameters has established it as a vital technology in fields such as structural health monitoring, industrial process control, and environmental sensing. Recent advancements in fiber optic technology, signal processing, and sensing algorithms have enhanced sensitivity, accuracy, and reliability, while innovations like fiber Bragg gratings and photonic crystal fibers have expanded application areas. As the field evolves, optical fiber sensing is expected to address key societal challenges in infrastructure monitoring, energy efficiency, and healthcare. This Special Issue compiles original research and review articles on recent advances, technologies, and applications in optical fiber sensing, including but not limited to physical, chemical, and biological sensors; interferometric, scattering, and polarimetric sensors; micro- and nano-structured sensors; distributed and multiplexed sensing; and applications in environmental, marine, security, defense, and industrial contexts.

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Deadline for manuscript submissions

20 November 2025

Applied Sciences

an Open Access Journal by MDPI

Impact Factor 2.5
CiteScore 5.5

mdpi.com/si/239395

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As the world of science becomes ever more specialized, researchers may lose themselves in the deep forest of the ever increasing number of subfields being created. This open access journal Applied Sciences has been started to link these subfields, so researchers can cut through the forest and see the surrounding, or quite distant fields and subfields to help develop his/her own research even further with the aid of this multi-dimensional network.

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