

Special Issue

High-Sensitivity Fiber-Optic Sensors: From Design to Applications

Message from the Guest Editors

High-sensitivity fiber-optic sensors represent a key technology advancing precision measurement across scientific and industrial fields. Their inherent strengths—including electromagnetic immunity, compact size, and remote distributed sensing capabilities—enable superior performance where conventional electronic sensors fall short. Progress toward higher sensitivity and lower detection limits continues through innovations in fiber structures, functional materials, interrogation methods, and micro–nano fabrication. These advances support transformative applications, from structural health monitoring in infrastructure and aerospace to real-time biochemical analysis for medical and environmental use. This Special Issue, “High-Sensitivity Fiber-Optic Sensors: From Design to Applications”, aims to highlight recent breakthroughs in this vibrant field. We invite high-quality original research articles, short communications, and reviews. Topics of interest include, but are not limited to: novel sensor design and simulation, advanced fabrication techniques, new sensing materials and mechanisms, and innovative applications in physical, chemical, and biological sensing.

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