Special Issue

Cryogenic Detectors: From Their Fundamental Physics to Their Applications in Space

Message from the Guest Editor

The Special Issue “Cryogenic Detectors: From Their Fundamental Physics to Their Applications in Space” aims to provide a comprehensive platform for presenting recent progress, emerging challenges, and future directions in cryogenic sensing technologies. Operating from millikelvin to low-kelvin temperatures, these detectors play a pivotal role in a broad range of scientific disciplines, with applications spanning particle and astroparticle physics, cosmology, quantum information science, condensed-matter research, and space instrumentation. This Special Issue welcomes original research articles, technical developments, and reviews related to the design, fabrication, characterization, and deployment of cryogenic sensors. Relevant topics include superconducting detectors (TES, MKID, SNSPD), cryogenic bolometers and calorimeters, quantum sensors, micro- and nanofabrication approaches, and cryogenic readout electronics such as SQUID-based and microwave multiplexing architectures. Studies addressing system-level integration, thermal design, reliability, and packaging for long-term or space-based operation are also of interest.

Guest Editor

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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.

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