

Special Issue

Advances in Superconducting Properties Derived from Nanomaterials

Message from the Guest Editor

This issue showcases recent advances in superconductivity driven by nanostructured materials, highlighting how nanoscale engineering—like thin films, nanowires, heterostructures and interfaces—alters properties and unveils new phenomena. It covers experimental and theoretical research on fundamental mechanisms and applications. Recent progress includes enhancing flux pinning through engineered defects, inducing superconductivity at interfaces and exploring new quantum states in low-dimensional systems. Improvements in fabrication methods and characterization tools have allowed for precise microstructure control, resulting in the better performance of superconducting devices. Moreover, hybrid nanostructures and proximity effects are creating new opportunities in quantum technologies and nanoelectronics. In the present Special Issue, we invite high-quality submissions from leading groups in the field. We welcome original research articles on the synthesis, characterization and superconducting properties of nanomaterials, as well as theoretical and computational studies on nanoscale superconductivity.

Guest Editor

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Message from the Editor-in-Chief

Nanoscience and nanotechnology are exciting fields of research and development, with wide applications to electronic, optical, and magnetic devices, biology, medicine, energy, and defense. At the heart of these fields are the synthesis, characterization, modeling, and applications of new materials with lower nanometer-scale dimensions, which we call “nanomaterials”. These materials can exhibit unusual mesoscopic properties and include nanoparticles, coatings and thin films, metal–organic frameworks, membranes, nano–alloys, quantum dots, self-assemblies, 2D materials such as graphene, and nanotubes. Our journal, *Nanomaterials*, has the goal of publishing the highest quality papers on all aspects of nanomaterial science to an interdisciplinary scientific audience. All of our articles are published with rigorous refereeing and open access. We are proud of our increasing impact factor and ability to provide rapid decisions to authors.

Editor-in-Chief

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