Special Issue

Quantum Materials with Low-Dimensional Nanostructures: From Fundamentals to Applications

Message from the Guest Editor

Quantum materials, such as superconductors, ferromagnets, topological insulators, and Weyl semimetals, have attracted significant attention in the field of condensed matter physics and nanotechnology. These materials exhibit strong electron interactions, resulting in quasiparticles and intriguing quantum effects. Particularly in low-dimensional nanostructures, a diverse range of quantum phenomena, including Luttinger liquid, ferromagnetism, and charge density wave, have been observed. Understanding these effects is crucial for developing low-dimensional electronics and optoelectronics. This Special Issue aims to showcase recent advancements in quantum materials with low-dimensional nanostructures, encompassing fundamental research and practical applications. Researchers are encouraged to contribute research papers, communications, and reviews covering topics such as fabrication techniques, novel material properties, control of quantum effects, and material applications.

Guest Editor

Dr. Yu Zhang

School of Integrated Circuits and Electronics, Beijing Institute of Technology, Beijing 100081, China

Deadline for manuscript submissions

closed (10 December 2023)

Nanomaterials

an Open Access Journal by MDPI

Impact Factor 4.3
CiteScore 9.2
Indexed in PubMed

mdpi.com/si/171624

Nanomaterials
Editorial Office
MDPI, Grosspeteranlage 5
4052 Basel, Switzerland
Tel: +41 61 683 77 34
nanomaterials@mdpi.com

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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.

Editor-in-Chief

Prof. Dr. Eugenia Valsami-Jones
School of Geography, Earth and Environmental Science, University of Birmingham, Birmingham B15 2TT, UK

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