Special Issue

Mechanical, Physical Properties and Thermal Characteristics of Nanofiller-Reinforced Composites

Message from the Guest Editors

Nanofiller-reinforced composites have become a hotspot in materials science by enhancing mechanical, thermal, and electrical properties through dispersing nanofillers—like carbon nanotubes, graphene, and nano-silicon dioxide—into matrices. These fillers achieve significant improvements at low addition levels due to high surface area and unique interfaces, with broad applications in aerospace, electronics, energy, and construction. This Special Issue of *Nanomaterials* covers preparation methods such as 3D printing and in situ synthesis; functional uses including electromagnetic shielding, low dielectric materials, and photocatalysis; mechanical optimization via strengthening and heterogeneous design; and thermal management like super insulation and high-temperature stability. The aim is to promote innovation, explore multifunctional applications, and advance theoretical and performance research. Original research and reviews on preparation, applications, modeling, and simulations of nanofiller-reinforced composites are encouraged.

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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

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