Special Issue

Mechanical Behavior of Polymer Nanocomposites

Message from the Guest Editor

Polymer nanocomposites have experienced remarkable growth. Since the initial discovery of the way in which nanofillers enhance polymer properties, research has advanced significantly with a deeper understanding of matrix–filler interactions and sophisticated characterization techniques. This Special Issue will gather cutting-edge research on the mechanical behavior of polymer nanocomposites. Our focus encompasses detailed studies of both the materials and the structures that they form, delving into the effects of nanofiller dispersion, orientation, and surface modification on key properties such as strength, stiffness, and toughness. Additionally, we explore the mechanical performances of composite structures in real-world applications, to assess their safety, durability and reliability. We invite you to submit original research on experimental studies, theoretical modeling, innovative characterization methods, processing–property relationships, application-based behavior, new composite designs, and comprehensive reviews. We look forward to receiving your contributions to this exciting and dynamic field of polymer nanocomposite research.

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.

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