Special Issue

Advanced Polymer Composites: Design, Synthesis, and Functions

Message from the Guest Editors

Advanced polymer composites are engineered materials composed of a polymer matrix reinforced with fibers, nanoparticles, or hybrid fillers to achieve superior mechanical, thermal, electrical, biomedical, or other multifunctional properties. These materials are increasingly critical across industries such as aerospace, automotive, energy, construction, electronics, and healthcare due to their lightweight nature, high strength-to-weight ratio, corrosion resistance, and design flexibility. Despite their growing adoption, several challenges remain. These include a deeper understanding of structure–property relationships, improving long-term durability, enhancing recyclability and sustainability, and developing cost-effective, scalable manufacturing techniques. Addressing these limitations is essential to unlock the full potential of advanced polymer composites in next-generation technologies. This Special Issue seeks to bring together cutting-edge research and comprehensive reviews that address both fundamental science and practical engineering solutions.

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As the world of science becomes ever more specialized, researchers may lose themselves in the deep forest of the ever increasing number of subfields being created. This open access journal *Applied Sciences* has been started to link these subfields, so researchers can cut through the forest and see the surrounding, or quite distant fields and subfields to help develop his/her own research even further with the aid of this multi-dimensional network.

Editor-in-Chief

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