Special Issue

Multidisciplinary Design of Advanced Polymer Composite Materials and Structures

Message from the Guest Editor

The multidisciplinary design of advanced polymer composite materials and structures integrates materials science, mechanics, manufacturing processes, and optimization algorithms to achieve the goals of high performance, light weight, and multifunctionality. By combining the excellent mechanical properties and designability of fiber-reinforced composite materials such as carbon fiber and glass fiber, this field focuses on the integrated optimization of structure performance through multi-scale modeling (micro–macro), failure analysis, and environmentally adaptable design. The interdisciplinary collaborative approach integrates topology optimization, artificial intelligence-driven design, and digital manufacturing technologies to balance strength, stiffness, light weight, and cost constraints. Fiber-reinforced composite materials are applied in fields such as aerospace, automotives, and new energy, promoting structural innovation and sustainable development. Future trends in this field might include the integration of intelligent materials, digital twin technology, and research and development in green composite materials to address complex engineering challenges.

Guest Editor

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Since its foundation in 2009, *Polymers* has developed into an internationally renowned, extremely successful open access journal. The editorial team and the editorial board dedicatedly combine open-access publishing and high-quality rigorous peer reviewing. The performance of the journal has proven this strategy to be well-suited and highly successful. This is reflected in the increasing impact factor of *Polymers*, the most recent one being 4.7.

I would like to invite you to contribute to the success of the journal by sending us your high quality research papers. We would be pleased to welcome you as one of our authors.

Editor-in-Chief

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