

Special Issue

Advances in Sustainable Polymer Composites: Performance Enhancement and Multifunctional Applications

Message from the Guest Editors

The development of sustainable polymer composites has emerged as a critical pathway toward reducing environmental impact while achieving high-performance materials for modern applications. Recent advances in bio-based polymers, recycled fillers, nanomaterials and green processing technologies are transforming polymer composites into multifunctional systems with enhanced mechanical, thermal and barrier properties. Sustainable additives derived from natural fibers, biocarbon, cellulose and engineered nanoparticles now enable tailored performance while maintaining eco-friendly profiles. Additionally, the growing integration of multifunctionality, such as self-healing behavior, stimuli responsiveness, conductivity, flame retardancy and antimicrobial activity, broadens the application potential of these composites in packaging, mobility, electronics, construction and biomedical fields. By bridging sustainability with advanced functionality, the issue aims to guide the next generation of polymer composites toward circularity, durability and smart performance.

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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 4.9.

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

Prof. Dr. Alexander Böker

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