Special Issue

Polymer-Based Nanocomposites for Energy Applications

Message from the Guest Editor

This Special Issue highlights the cutting-edge progress in polymer nanocomposites synthesized through advanced polymerization techniques, including Single-Electron Transfer-Living Radical Polymerization (SET-LRP), Atom Transfer Radical Polymerization (ATRP), and other radical polymerization methods. Scientifically, the synergistic effect of nanomaterials within well-controlled polymer networks facilitates superior ion transport, enhanced mechanical integrity, and tailored interfacial interactions, making these nanocomposites ideal for energy-related applications. This Special Issue particularly focuses on their roles in high-performance solid-state lithium-ion batteries, supercapacitors for rapid energy storage, flexible polymer electrolytes for wearable devices, electrode stabilization strategies, fuel cell membranes, sensors, thermally stable separators for high-voltage batteries, and photocatalytic composites for solar energy harvesting. The goal of this Special Issue is to showcase innovative material strategies and scalable synthesis methods that drive the next generation of energy-efficient, durable, and multifunctional polymer nanocomposites.

Guest Editor

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Message from the Editor-in-Chief

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

Prof. Dr. Alexander Böker
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