Special Issue

Biodegradable Polymers and Bio-Based Composites: Synthesis, Modification and Environmental Impact of Sustainable Waste Management, Energy Applications and Preservation

Message from the Guest Editors

Biodegradable polymers and bio-based composites are pioneering sustainable material innovation, addressing plastic waste challenges and advancing eco-friendly alternatives. This Special Issue delves into the synthesis and modification of biodegradable polymers like cellulose, starch, and cellulose nanocrystals (CNCs) to enhance mechanical, adhesive, and adsorption properties. It also explores bio-based composites for applications in packaging, industry, and energy storage. A key highlight is the role of olefins and specialized polymers in battery technology, where their properties enhance performance, safety, and sustainability. Integrating biodegradable materials into battery design aims to minimize environmental impact while supporting renewable energy solutions. Additionally, the issue examines the environmental implications of these materials, emphasizing their potential to transform waste management, reduce landfill dependency, and promote a circular economy. This research collection showcases the transformative potential of biodegradable polymers, bio-based composites, and advanced polymers in driving a sustainable future across industries, from packaging to energy storage.

Guest Editors

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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

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