Special Issue

Recent Advances in Sustainable and Recyclable Polymer Materials from Renewable Resources

Message from the Guest Editors

Recent advances in polymer science have led to the development of sustainable and recyclable polymer materials derived from renewable resources such as plant biomass, natural oils, starch, and microbial sources. This review highlights the cutting-edge progress being made in the synthesis, characterization, and use of bio-based polymers, including polylactic acid (PLA), polyhydroxyalkanoates (PHAs), bio-polyethylene, and novel lignin- and cellulose-derived polymers. Emphasis is placed on innovative strategies for enhancing the recyclability, biodegradability, and performance of these materials through chemical modification, copolymerization, and advanced processing techniques. Furthermore, emerging technologies such as dynamic covalent chemistry and closed-loop recycling systems are discussed for their potential to enable circular life cycles. The convergence of green chemistry principles with advanced material design offers promising pathways toward a more sustainable polymer industry and a reduced environmental footprint.

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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

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