Special Issue

Bio-Based Thermal Storage Polymeric Materials for Energy-Efficient Applications

Message from the Guest Editor

The urgent need for carbon reduction, sustainable resource utilization, and energy-efficient solutions has driven growing interest in phase change materials (PCMs) as thermal energy storage media. PCMs could absorb, store, and release significant amounts of latent heat during phase transitions, making them highly effective for temperature regulation and passive thermal management applications. While conventional PCMs such as paraffin and salt hydrates are widely studied, concerns remain regarding their petroleum-derived origins, cost, environmental impact, and long-term stability. In this context, natural supporting materials such as wood, bamboo, cellulose, and other lignocellulosic resources offer a promising sustainable alternative. Their porous structures, renewability, biodegradability, and abundance provide unique pathways for integrating PCMs into eco-friendly, high-performance composites. Such bio-based PCM systems have potential uses across diverse applications, from energy-saving building materials and temperature-stable packaging to adaptive textiles and thermal management devices.

Guest Editor

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Deadline for manuscript submissions

closed (31 March 2026)

Polymers

an Open Access Journal by MDPI

Impact Factor 4.9
CiteScore 9.7
Indexed in PubMed

mdpi.com/si/253305

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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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