Special Issue

Development and Technologies of Biomass Conversion Process, Biofuel Production and Biorefinery

Message from the Guest Editors

The global shift toward sustainable energy systems has positioned biomass conversion and biorefinery technologies at the forefront of the energy transition. This Special Issue aims to capture innovative, interdisciplinary research advancing the development of energy-efficient and digitally integrated biomass conversion pathways. With a focus on next-generation biofuels and renewable energy carriers, the issue seeks to highlight scalable solutions that synergize chemical, biological, and electrochemical processes with intelligent control systems and real-time energy optimization. We invite contributions that delve into the following research frontiers, which represent the most promising and high-impact directions in the field of biomass energy science:

- The coupling of biomass conversion with carbon capture, energy storage, and renewable power systems;
- The valorization of process by-products (e.g., syngas, biochar, organic acids) for energy recovery and circular economy applications;
- Thermochemical innovations: plasma-assisted, microwave, solar–thermal, and hybrid fuel generation;
- Advanced catalytic systems and novel catalysts for the selective and high-yield transformation of biomass

Guest Editors

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Deadline for manuscript submissions

22 December 2025

Energies

an Open Access Journal by MDPI

Impact Factor 3.2
CiteScore 7.3

mdpi.com/si/245943

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Message from the Editor-in-Chief

Energies is an international, open access journal in energy engineering and research. The journal publishes original papers, review articles, technical notes, and letters. Authors are encouraged to submit manuscripts which bridge the gaps between research, development and implementation. The journal provides a forum for information on research, innovation, and demonstration in the areas of energy conversion and conservation, the optimal use of energy resources, optimization of energy processes, mitigation of environmental pollutants, and sustainable energy systems.

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