Special Issue

Biomass Catalysis—Sustainable Developments of Energy

Message from the Guest Editors

The urgent need for sustainable energy solutions has placed biomass catalysis at the forefront of the global energy transition. As a renewable, abundant, and carbon-neutral resource, biomass holds immense promise for producing clean energy, chemicals, and materials. Key topics include:

- Catalyst Innovation: Cutting-edge designs in heterogeneous, homogeneous, and biocatalysts tailored for efficient and selective biomass conversion.
- Advanced Processes: Integrating technologies like pyrolysis, hydrothermal liquefaction, and gasification with catalytic systems for optimal energy and material recovery.
- Feedstock Diversification: Strategies for utilizing a broad spectrum of biomass sources, from lignocellulosic residues to algal biomass, with an emphasis on scalability and regional adaptability.
- Sustainable Practices: Green chemistry principles.
- Systematic Evaluation: Life-cycle assessments, environmental impact studies, and techno-economic analyses to ensure the viability of catalytic systems for industrial deployment.

- biomass conversion
- sustainable catalysis
- renewable energy
- green chemistry
- biofuels
- waste valorization
- circular economy

Guest Editors

Dr. Giuseppe Bagnato
KORE Group, School of Engineering, Lancaster University, Lancaster LA1 4BY, UK

Dr. Humbul Suleman
School of Computing, Engineering & Digital Technologies, Teesside University, Middlesbrough TS1 3BX, UK

Deadline for manuscript submissions

28 February 2026

Catalysts

an Open Access Journal by MDPI

Impact Factor 4.0
CiteScore 7.6

mdpi.com/si/228868

Catalysts
Editorial Office
MDPI, Grosspeteranlage 5
4052 Basel, Switzerland
Tel: +41 61 683 77 34
catalysts@mdpi.com

mdpi.com/journal/catalysts

Catalysts

an Open Access Journal by MDPI

Impact Factor 4.0
CiteScore 7.6

mdpi.com/journal/catalysts

About the Journal

Message from the Editor-in-Chief

Editor-in-Chief

Prof. Dr. Keith Hohn
Carl R. Ice College of Engineering, Kansas State University, Manhattan, KS, USA

Author Benefits

High Visibility:

indexed within Scopus, SCIE (Web of Science), Inspec, Ei Compendex, CAPlus / SciFinder, CAB Abstracts, and other databases.

Journal Rank:

JCR - Q2 (Chemistry, Physical) / CiteScore - Q1 (General Environmental Science)

Rapid Publication:

manuscripts are peer-reviewed and a first decision is provided to authors approximately 16.6 days after submission; acceptance to publication is undertaken in 2.7 days (median values for papers published in this journal in the first half of 2025).

MDPI