Special Issue

Catalytic Advances in Biomass Derivatives to Value-Added Products and Biomass Conversion for Green Chemistry

Message from the Guest Editors

The transition to sustainable and green chemistry relies heavily on the efficient conversion of biomass into high-value products. Catalytic advances play a crucial role in transforming biomass derivatives into biofuels, chemicals, and other valuable materials. This process not only contributes to reducing reliance on fossil fuels but also supports the development of eco-friendly alternatives across various industries. Recent innovations in catalytic technologies have led to significant progress in biomass conversion processes and enabling the selective transformation of biomass components. These advances include the development of more efficient and stable catalysts, such as metal catalysts, non-precious metal catalysts, heterogeneous catalysts, biocatalysts, and other types of catalysts, which improve reaction rates, selectivity, and product yields. Furthermore, catalytic upgrading techniques, including hydrodeoxygenation, hydrogenation, and pyrolysis, have enabled the production of cleaner biofuels, higher-value chemicals, and bioproducts with minimal environmental impact.

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