Special Issue

Catalytic Conversion of Carbohydrates into Platform Chemicals

Message from the Guest Editors

The catalytic conversion of carbohydrates into platform chemicals is a cornerstone of sustainable chemistry, driven by the urgent need to transition from fossil-based resources to renewable alternatives. These platform molecules, such as 5-hydroxymethylfurfural (HMF), furfural, levulinic acid, sorbitol, lactic acid, and nitrogen-containing derivatives from chitin, serve as critical intermediates for producing biofuels, biodegradable polymers, pharmaceuticals, and other functional materials, aligning with global carbon neutrality goals.

This Special Issue seeks to highlight cutting-edge advancements in catalytic technologies that enable efficient, selective, and scalable transformation processes. We invite contributions on novel catalysts (heterogeneous, homogeneous, or enzymatic), innovative reactor designs, in-depth mechanistic studies, and processes for valorizing underutilized carbohydrate sources (e.g., pectin, marine polysaccharides, chitin). By bridging fundamental research and industrial applications, this issue aims to accelerate the development of circular bioeconomies and inspire interdisciplinary collaborations for a greener future.

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