Special Issue

Catalysts and Plastics: From Degradation to Functional Applications

Message from the Guest Editors

The accumulation of plastic waste presents a critical global environmental challenge, driving the need for advanced catalytic strategies that not only degrade plastics but also transform them into valuable products. Recent innovations have moved beyond traditional thermal pathways to explore advanced catalytic technologies, including biocatalysis, electrocatalysis, and photocatalysis.

This Special Issue highlights innovative research on advanced catalysts and catalytic processes for plastic depolymerization and upcycling. We invite submissions involving the design and synthesis of novel catalysts (such as single-atom, nanostructured catalysts, or engineered enzymes), the development of novel transformation pathways for synthesizing high-value products (such as chemicals, new polymers, or functional carbon materials), and the construction of innovative catalytic systems, particularly tandem or hybrid processes that synergistically combine different catalytic technologies. Additionally, mechanism studies and advanced characterization of catalytic processes are also welcome.

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