Special Issue

Efficient Catalysts in Carbon Dioxide (CO_2) Conversion

Message from the Guest Editor

The urgent need to mitigate climate change and achieve carbon neutrality has driven significant interest in catalytic technologies for converting CO2 into value-added chemicals, fuels, and materials. This Special Issue focuses on advancements in the design, synthesis, and application of high-performance catalysts for CO2 conversion processes, including thermochemical, electrochemical, photocatalytic, and hybrid approaches. Contributions highlighting novel catalytic materials (e.g., single-atom catalysts, metal–organic frameworks, nanostructured composites), mechanistic insights into active sites and reaction pathways, and strategies to enhance catalytic activity, selectivity, and stability are encouraged. Additionally, studies addressing scalability, cost-effectiveness, and sustainability of catalyst synthesis will be prioritized. By bridging fundamental research and practical applications, this Issue aims to accelerate the development of efficient catalytic systems that enable the circular utilization of CO2, contributing to renewable energy storage, sustainable chemical production, and global decarbonization efforts.

Guest Editor

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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).

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