

## Special Issue

# Advances in Carbon Dioxide Capture and Valorization Through Catalytic Conversion: Innovations and Challenges

### Message from the Guest Editor

This Special Issue explores the latest advancements in carbon dioxide (CO<sub>2</sub>) capture and valorization, with a particular focus on innovative catalytic conversion technologies. As CO<sub>2</sub> emissions remain a major driver of global climate change, efficient, scalable, and economically viable solutions for CO<sub>2</sub> capture and its subsequent transformation into value-added products are crucial for mitigating global warming and achieving carbon neutrality. This Issue highlights cutting-edge processes that integrate CO<sub>2</sub> capture with catalytic conversion. It addresses both fundamental and applied research, as well as the critical challenges related to scaling up and commercialization. Contributions are expected to cover the development of novel catalytic materials, such as metal-organic frameworks (MOFs), transition metal-based catalysts, photocatalysts, and electrocatalysts, with a particular focus on multifunctional catalysts that enhance catalytic performance. Key topics include CO<sub>2</sub> hydrogenation, CO<sub>2</sub> methanation, and the selective conversion of CO<sub>2</sub> into fuels and platform chemicals, as well as electrochemical and photochemical CO<sub>2</sub> conversion technologies.

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### Deadline for manuscript submissions

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## Catalysts

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