



Catalysis and Catalytic Processes for CO₂ Conversion toward NetZero

Guest Editors:

Dr. Kwang-Deog Jung

Clean Energy Research Center,
Korea Institute of Science and
Technology, Seoul, Korea
Division of Energy Environment
Technology, University of Science
and Technology, Seoul, Republic
of Korea

Prof. Dr. Jihun Oh

Department of Materials Science
and Engineering, KAIST, Daejeon,
Korea

Deadline for manuscript
submissions:

closed (20 March 2022)

Message from the Guest Editors

Achieving the NetZero goal across the world is beyond necessary—it is absolutely pivotal at this point. CCUS plays a significant role in this, and new approaches to CO₂ conversion must be considered. There are, however, several obstacles to the commercialization of CO₂ conversion processes. This will lead to the processing of energy that emits CO₂ not being as big an issue for LCA analysis anymore, being replaced by the amount of electrification required in the process, which will be considered for both LCA and TEA.

Carbon-based products in a NetZero society should be manufactured mainly via CO₂ conversion technology. Clearly, power plants and chemical processes using fossil fuels can be maintained as long as CCUS can supply carbon-based products while simultaneously respecting the NetZero rule.

This Special Issue aims to cover recent progress and advances in both catalysts and processes in the field of CO₂ conversion: (1) CO₂ hydrogenation, (2) monomer and polymer synthesis from CO₂, (3) electrochemical CO₂ reduction, (4) biomass utilization from green algae, (5) photoelectrochemical CO₂ reduction, and (6) enzyme and microbial electrosynthesis from CO₂.

