

## Special Issue

# Advanced Solutions in the Reduction, Conversion, and Utilization of CO and CO<sub>2</sub>

### Message from the Guest Editor

As interest in global warming increases around the world, it is important to suppress CO<sub>2</sub> emissions into the atmosphere as well as treat CO<sub>2</sub> and CO as unused resources and convert them into value-added chemicals and fuels. The integration of CO<sub>2</sub> and CO utilization pathways within CCUS frameworks broadens the impact of mitigation strategies. By diverting these gases from storage-only routes and channeling them into productive applications, industries can offset part of the cost of capture while creating circular carbon loops. Converting CO<sub>2</sub> and CO into synthetic fuels, polymers, carbonates, or platform chemicals diversifies the mitigation toolbox and supports sectors that are otherwise difficult to decarbonize. Such developments have been receiving significant levels of attention as carbon capture and utilization (CCU) technology. Four major CCU technologies using thermochemistry, photochemistry, bioprocessing, and electrochemistry are particularly promising in this field, but they have their own technical challenges.

### Guest Editor

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