



Heterogeneous Electrocatalysts for CO₂ Reduction

Guest Editor:

Dr. Linping Qian

Chemistry Department, Fudan
University, Shanghai 200438,
China

Deadline for manuscript
submissions:

closed (15 November 2022)

Message from the Guest Editor

Dear Colleagues,

The utilization of CO₂ in value-added products has attracted much attention. The electrochemical conversion of CO₂ and H₂O into alcohol, hydrocarbon, synthesis gas, etc., presents a potential approach under mild conditions using renewable electricity. It is a challenge to find an electrocatalysis process with a low cost that is efficient in energy transformation and product selection.

Due to the sluggish kinetics of CO₂, a high activation energy is needed to initiate CO₂ electroreduction by forming the CO₂^{•-} intermediate, and thus the onset potential is significantly more negative than the equilibrium potential of CO₂ reduction. Although the electroreduction of CO₂ to high-energy density fuels and value-added chemical feedstocks is promising, the large overpotential of this process and the low activity and durability of the currently available catalysts still restrict this technique in terms of its large-scale commercialization.

This Special Issue is focused on the electrocatalytic CO₂ reduction reaction (CO₂RR). Substantial efforts are focused on suppressing the hydrogen evolution reaction (HER) and activating CO₂ through the catalyst design.

