

Special Issue

Electroreduction of CO₂ to Fuels and Chemicals

Message from the Guest Editors

Anthropogenic emissions of greenhouse gasses such as CO₂ have been pointed out to contribute to climate change. In order to mitigate climate change, a number of approaches have been proposed to reduce the levels of CO₂ in the atmosphere. In this sense, electroreduction of CO₂ allows the potential reutilization and transformation of CO₂ into high added value chemicals by using renewable energy such as wind power and solar energy. A wide variety of products including CO, syngas (CO/H₂), CH₄, and methanol, among others, have been obtained with high faradaic yields via electroreduction of CO₂. Nevertheless, research is still required on: (i) new (and cheaper) electrocatalyst formulations with high faradaic selectivities; (ii) new electrochemical reactor configurations able to overcome kinetic/mass transport limitations and therefore reduce the overpotential of the reduction processes; and (iii) mitigation of the competing H₂ evolution reaction. The present special issue is devoted to gather these efforts of the research community worldwide and present the most relevant technologies allowing this paradigmatic conversion.

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