

Developing Electrocatalysts for Converting Carbon Dioxide to Oxygenates

Natl. Univ. Singapore¹, °Boon Siang Yeo¹

E-mail: chmyeos@nus.edu.sg

Currently, more than 80% of the world's energy needs are met by burning fossil fuels. Supplies of these fuels are intrinsically limited and will eventually run out. Combustion of fossil fuels also generates carbon dioxide, whose rapidly increasing atmospheric concentration is suspected to be an accelerant of global warming. One solution for mitigating atmospheric concentrations of CO₂ is to electrochemically reduce these molecules into chemical fuels. In this talk, we share our recent works related to the development of catalysts for the selective electroreduction of CO₂, using an interplay of experiments and theory. We shall discuss how multi-carbon molecules such as methanol, ethanol, 1-butanol, etc. could be formed from CO₂ reduction, and the pathways by which these transformations occur.