International Journal of Electrochemistry

Hindawi

Special Issue on

Electrochemical Conversion of Carbon Dioxide

CALL FOR PAPERS

The atmospheric CO_2 levels have been increasing significantly over the past few decades. This rise has started to lead to undesired climate impacts such as global warming, rising sea level, and more erratic weather patterns. A variety of strategies, such as sequestrating carbon dioxide and storing it underground, switching to renewable energy sources, increasing the energy efficiency of buildings, using less carbon taxing fuels, and utilizing carbon dioxide, are proposed to slow or stop this rise. Approaches to utilize carbon dioxide can be divided into two large categories: enhanced biological utilization and technological utilization, with the latter being divided into low-energy exchange processes and high-energy exchange processes. Within the high-energy exchange processes, electrochemical conversion of CO_2 into value-added chemicals or their intermediates is an approach that is capable of utilizing intermittent renewable energy and storing it in the form of chemical energy, while at the same time recycling CO_2 as an energy carrier, thereby reducing CO_2 accumulation in the atmosphere. Furthermore, by utilizing CO_2 as the starting material for chemical production, this process reduces our dependency on fossil fuels.

The present special issue aims to provide high quality research articles as well as reviews from a variety of topics relating to the electrochemical conversion of carbon dioxide. These contributions seek to address various issues and provide guidance and prospects within this area of research.

Potential topics include but are not limited to the following:

- Catalyst development for the electroreduction of CO_2
- Electrode fabrication, development, and characterization
- Studies of different electrolytes for this process, including aqueous electrolytes and nonaqueous electrolytes
- Development of reactors for this process
- Novel analytical methods for products detection
- *In situ* study of reaction intermediates on electrode surfaces
- Experimental and/or theoretical studies on reaction mechanism

Authors can submit their manuscripts through the Manuscript Tracking System at https://mts.hindawi.com/submit/journals/ijelc/eccd/.

Lead Guest Editor
Sichao Ma, Opus 12 Inc., Berkeley, USA
sichao@opus-12.com

Guest Editors
Jingjie Wu, Rice University, Houston, USA
jw61@rice.edu

Lei Cheng, Lawrence Berkeley National Laboratory, Berkeley, USA
leicheng@lbl.gov

Ke Yang, Dow Chemicals, Marlborough, USA
kyang5@dow.com

Manuscript Due
Friday, 29 September 2017

First Round of Reviews
Friday, 22 December 2017

Publication Date
Friday, 16 February 2018