

**Project Title:** *The limiting current density towards CO<sub>2</sub> reduction in a MEA cell*

**Thesis Location:** Materials for Energy Conversion and Storage (MECS) – Applied Sciences

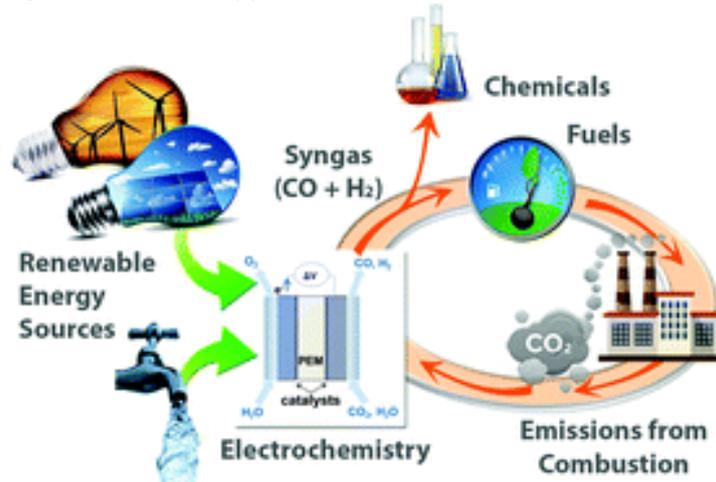
**Daily Supervisor:** Kailun Yang

**Supervisor:** Dr. Tom Burdyny

**Scope of the Research Challenge:**

Renewable energy sources such as solar and wind energy are used to replace fossil fuels to mitigate the global warming issued caused by greenhouse gases. Fitting in that background, one of research topics in our group is electrochemical CO<sub>2</sub> reduction using the electricity produced by renewable energies.

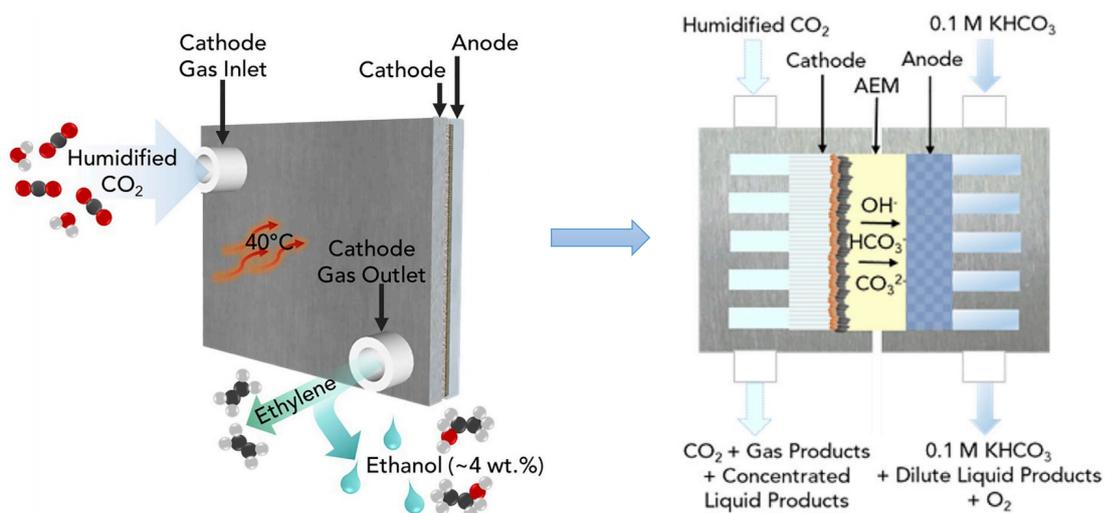
To test whether there is a limitation towards CO<sub>2</sub> reduction, and what are the possible factors causing such limitation, are of great importance to fully understand CO<sub>2</sub> electrolyzer. Which could help to guide the design for industrial applicable electrochemical CO<sub>2</sub> reduction system in the future.



**What will you be doing?**

In this project we would like to tackle the problem of:

- Making stable electrodes and stable MEA system for CO<sub>2</sub> reduction
- Building up a gas-mixture to make at least 2 different gases can be uniformly mixed
- How and why electrochemical CO<sub>2</sub> reduction current is limited



MEA system for CO<sub>2</sub> reduction

### **What do we require of you?**

We expect that you

- will be **enthusiastic and eager** to learn about the field you are working in
- will could **work and interpret scientific data independently**
- will maintain a safe working environment and learn about the standards in the lab
- will show a great deal of autonomy by the end of you project

### **What can you expect of your work situation?**

During the period of your thesis you will be based at the university working within the larger MECS group. Throughout the project you will learn to organize and communicate the results to your peers through 2 presentations to the group, and the writing of a thesis report. Together this will take approximately 7 months at full-time (38 hours/week).

The MECS group also has an inviting coffee break together every day at 10:30, and a Borrel every Wednesday at 17:00. Once you're a part of the group we encourage you to join and discuss life and work with your new colleagues!

### **Interested in this thesis end project?**

Please contact the daily supervisor at the details below to arrange for a discussion about the project!

Contact Kailun Yang at K.Yang-1@tudelft.nl