Electrochemical capture of CO_2 from ambient air

Type of project:	Thesis / Internship
Duration:	6-8 months, starting from March, 2021
Location:	Wetsus, European centre of excellence for sustainable water technology, Leeuwarden

Project description

Climate change is one of the most critical global challenges. Increasing atmospheric CO_2 concentration brought by anthropogenic emissions is the primary driver of climate change. Capturing CO_2 from emission points and even directly from the air provides a potential solution to mitigate the amount of CO_2 emissions and reduce the atmospheric CO_2 concentration.

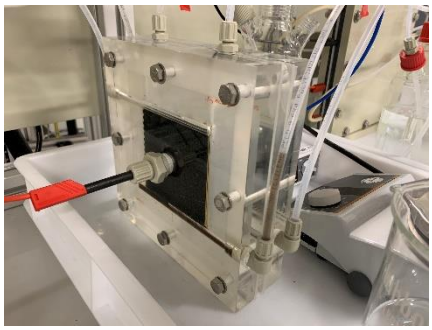

Figure 1 Electrochemical cell used in this study

At Wetsus, under the theme Sustainable Carbon Cycle (https://www.wetsus.nl/sustainable-carbon-cycle), we aim to develop novel CO_2 capture technologies that could be potentially energy efficient and environmentally benign [1]. Based on the extensive knowledge we have on water technologies, current studies focus on applying electrochemical systems for CO_2 capture.

Your tasks

- Operating an electrochemical system
- Characterizing the performance of the system based on several parameters
- Optimizing the operation conditions in terms of energy consumption and CO_2 capture efficiency

Requirements

- Specialized in environmental science, chemical engineering, or related fields, the experience of working with electrochemical or carbon capture system will be a bonus
- Actively enrolled in undergraduate (BSc) or graduate (MSc) studies
- Interest in practical laboratory experience and analytical work
- Fluent in English (speaking, writing and communication skills)
- Highly motivated, enthusiastic and independent who also like to work in a team

How to apply

For application, please send a motivation letter (max. 1 page) and a CV (max. 2 pages) to Qingdian Shu (qingdian.shu@wetsus.nl). Suitable applicants will be invited for a Skype interview.

Please note that Wetsus can offer internships to EU citizens only. Non-EU citizens need to be enrolled at a Dutch university to be eligible for this project.

1. Shu, Q.; Legrand, L.; Kuntke, P.; Tedesco, M.; Hamelers, H. V. M., Electrochemical Regeneration of Spent Alkaline Absorbent from Direct Air Capture. *Environmental Science & Technology* **2020,** *54*, (14), 8990-8998.