

## Thesis offer for a Msc student in the field of chemical engineering/environmental technology (From May 2017)

<b>Topic:</b>	Electrochemical CO <sub>2</sub> capture with capacitive cell
<b>Duration:</b>	6 months
<b>Location:</b>	Wetsus, European centre of excellence for sustainable water technology, Leeuwarden ( <a href="https://www.wetsus.eu">https://www.wetsus.eu</a> )
<b>Salary:</b>	350 euros

### Background:

With the continuous increase of CO<sub>2</sub> emissions and the need of energy, the production of clean energy is essential. To reach this goal, several technologies were developed to capture CO<sub>2</sub> from exhaust gas of power plants and industries. However, these technologies are not widely used due to the large amount of energy needed to capture CO<sub>2</sub>.

Our project consists of developing a new technology, which could potentially improve greatly the energy efficiency of the CO<sub>2</sub> capture process. This technology consists of a capacitive cell, composed of ions exchange membranes and porous activated carbon electrodes (Fig. 1 and Fig. 2). Nevertheless, energy losses are limiting the current performance of the capacitive cell and need to be investigated.

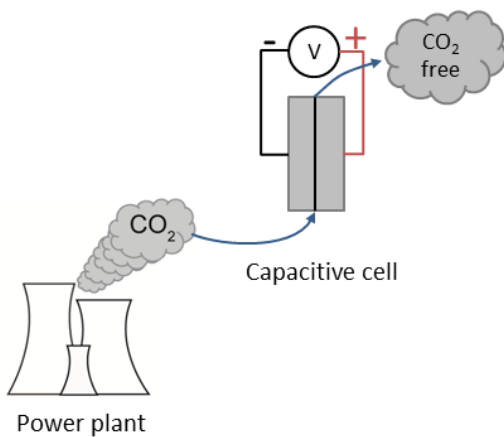


Figure 1: Scheme of the mixing energy between CO<sub>2</sub> and air

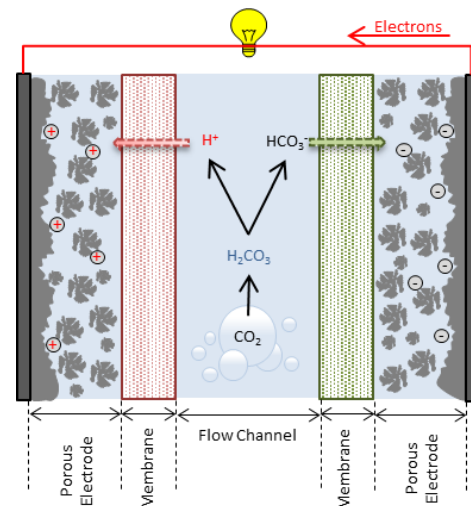


Figure 2: Scheme of the capacitive cell

### Task specifications:

Your task would be to investigate the energy losses in the system, in order to improve the energy efficiency of the system. Your task will mainly vary between membrane testing and cell design. Activated carbon testing and modelling could also be considered during the thesis duration.

### Profile wanted:

We are looking for a highly motivated and independent researcher. The student should be capable to plan and execute scientific experiments. Wetsus is an international environment, thus fluency in English is a requirement.

### Application:

***If you have any question does not hesitate to contact me.*** Candidate interested for this project are invited to send a CV to Louis Legrand (PhD candidate): [louis.legrand@wetsus.nl](mailto:louis.legrand@wetsus.nl)