

## Project Summary

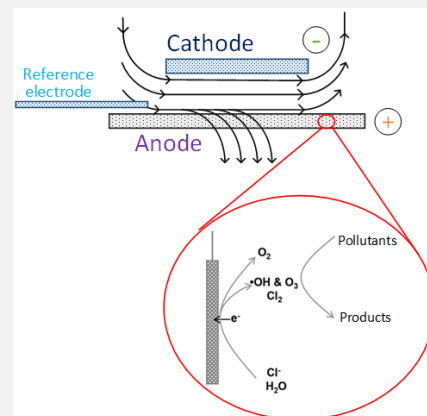
### Nano-Electro Membrane Processes for Micropollutant Removal in Water Reuse

The current presence of steroid hormones in natural waters and their negative effect on surroundings and human health is an issue of global concern. This Masters project builds on the electrochemical filtration processes based on carbon nanotubes (CNTs) electro-membrane for the removal of micropollutants from water. The main aim of this project is to investigate the performance of the electrochemical filtration process for micropollutants removal from water.

The research is carried out in collaboration with the Hebrew University of Jerusalem and the Technion, in Israel. The project is developed with the following objectives, i) characterize the electrochemical properties in terms of electroactivity and chemical stability of the prepared electro-membranes; ii) study the effectiveness of the electro-membrane for the removal of micropollutants; iii) investigate the effects of various operating parameters on the removal performance.

The research will investigate the following research questions:

- ◆ How good is the electrochemical properties of the CNTs electro-membrane?
- ◆ What is the performance of the CNTs electro-membrane for micropollutants removal from water?
- ◆ How will the removal performance be affected by the various operating conditions?



Master student will have the opportunity to co-author a research publication. Master student will need to take part in group activities, oral presentation in group meeting and writing of reports (medium of all communications and writing will be in English).

## Required Skills

### Studies in Chemical/Process Engineering or equivalent (Uni, TH)

Basic knowledge in electrochemistry, membrane technology, and water analysis. Evidenced writing skills in English language, ability to use MS Word, Excel, know-how for Origin Labs software and Endnote for data analysis, graphing and citation management, willingness to lead or contribute to the writing of a scientific publication.

## Institute/ Department

Institute for Advanced Membrane Technology (IAMT)

Bldg 352, Campus North, Hermann-von-Helmholtz-Platz 1, 76344 Eggenstein-Leopoldshafen

## Start Date

09/2021

## Application Procedure

Please email CV, transcripts and motivation letter with available time period for evaluation.

## Project Advisor(s)

Dr. Siqi Liu: [siqi.liu@kit.edu](mailto:siqi.liu@kit.edu)

Prof. Dr.-Ing. Andrea Iris Schäfer: [andrea.iris.schaefer@kit.edu](mailto:andrea.iris.schaefer@kit.edu)

<https://www.iamt.kit.edu/>