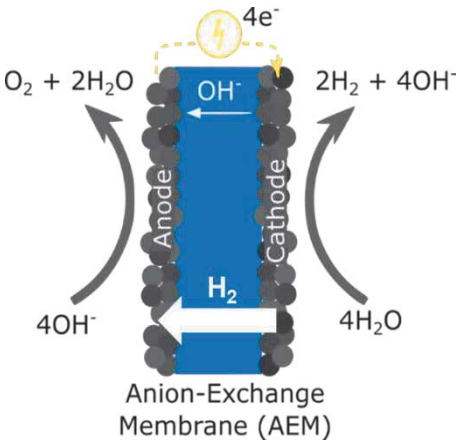
Student Research Assistant (w/m/d)

Field of study: engineering, chemistry, material science, physics (or similar)

Hydrogen Permeation in Anion-Exchange Membrane (AEM) Water Electrolysis

Context

The junior research group "Electrochemical Energy Systems" works on fuel cells, batteries and electrolyzers. The group is dedicated to integrating latest material developments into state-of-the-art electrochemical energy systems.



Global climate change is forcing us to make major changes in energy production, use and storage. Hydrogen is a promising energy vector with a low environmental impact and will thus play an important role in achieving the decarbonization goals for 2050. Two commercial low-temperature water electrolyzer technologies, alkaline water electrolyzer (A-WE) and proton-exchange membrane water electrolyzer (PEM-WE), are currently available. Both technologies have major drawbacks: A-WE are characterized by a small operation window and low efficiency, while PEM-WE is reliant on expensive critical raw materials. Therefore, anion exchange membrane water electrolysis has become an increasingly promising technology to overcome the limitations of current commercial systems. One yet unexplored crucial area of this technology is hydrogen permeation through the membrane (crossover from the cathode to the anode), which leads to efficiency losses and safety risks.

For this purpose, we are looking for a motivated student to help with electrochemical measurements, the test bench setup and the fabrication of electrodes. You will be working in close collaboration with our PhD-students, post-docs and engineers in our own laboratories.

Your profile

- Communication and team-work skills are essential
- You are interested to work in the field of energy storage and sustainable technologies
- You work in a target-oriented and structured manner
- Beneficial: experience in lab work, spectroscopy, and/or electrochemistry

The position

- Excellent working conditions in the young and interdisciplinary “Electrochemical Energy Systems” (EES) group
- Flexible working time with 4-15 hours per week
- Starting date: flexible
- Working language: English or German

Please send your application including CV, transcript of records and short motivation letter via e-mail to

alexander.kohushoelter@imtek.uni-freiburg.de

Alexander Kohushölter, M.Sc.
Electrochemical Energy Systems
Department of Microsystems Engineering - IMTEK
University of Freiburg
Georges-Koehler-Allee 103, 79110 Freiburg

For more information feel free to contact us or visit: www.ees-lab.org