



# H2OMER

## Postdoctoral research on hydrogen production via direct electrolysis of seawater

### Background & Objectives

Currently, the use of fresh water for H<sub>2</sub> production poses a problem due to its increasing scarcity, whereas seawater, which is abundant and economically viable, offers an attractive alternative. However, the electrolysis of seawater presents challenges due to its complex composition, particularly the presence of dissolved salts and ions that can impact the electrolysis process. The aim of this programme was to identify and find ways to overcome the obstacles to direct seawater electrolysis.

### Objectives

Following a detailed literature review, it was determined that to extend the lifespan of alkaline seawater electrolysis, it was crucial to improve the stability of key components, such as the electrodes in the electrolyser. Consequently, this study aims to develop new catalysts based on non-noble metals for the alkaline electrolysis of seawater.

### Our strengths in this project

Major scientific output via a scientific journal article: "Is Direct Seawater Splitting Realistic with Conventional Electrolyser Technologies?" published in ACS Energy Letters [Link to the article](#)

#### Market

Hydrogen production

#### Role

TRL 4

#### Cycle

Laboratory testing

#### Year

2022–2024

#### Location

France

