

# Master thesis (w/m/d)

Background Chemistry, Material sciences  
(or similar)

## Laser ablation and colloidal deposition of nanoparticles as catalysts in electrochemical energy systems

### Context

The use of hydrogen fuel cells in vehicles and trucks is one possibility to reduce the CO<sub>2</sub>-emissions emitted by the transport sector. Since the catalyst is one of the main cost drivers in the system, this area has become the focus of research in the past years.

The junior research group „Electrochemical Energy Systems“ at the Institute of Microsystems Engineering and the Hahn-Schickard-Institute in Freiburg investigates state-of-the-art hydrogen technologies and develops novel fuel cell concepts in cooperation with industry partners.



### Your tasks

The core of a hydrogen fuel cell is the membrane electrode assembly (MEA), in which the catalyst is embedded in the electrodes. Your task would be to develop a colloidal deposition via laser ablation of one/different catalysts for an electrochemical energy system (fuel cell, CO<sub>2</sub>-electrolysis, etc.).

### Your profile

- You are communicative and have a high team-spirit
- You are interested in novel materials for energy storage and renewable energies
- You can work in a concentrated, focused and structured way
- You are experienced with practical work and enjoy working in the lab

### The position

- We offer excellent working conditions in an interdisciplinary research group with a pleasant collegial working atmosphere
- Modern infrastructure for material characterization
- Working language is English or German
- Earliest starting date: November 2022
- Prior to the thesis, we would appreciate 3 months of HiWi-occupation within our group

Please send your application to:

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For more information please reach out to us or visit:

<https://www.ees-lab.org/>

