Shaping change: this is what drives us at Forschungszentrum Jülich. As a member of the Helmholtz Association with some 7,600 employees, we conduct interdisciplinary research into a digitalized society, a climate-friendly energy system, and a sustainable economy. We focus on the natural, life, and engineering sciences in the fields of information, energy, and bioeconomy. We combine this with expertise in high-performance computing and artificial intelligence using unique scientific infrastructures.

At the Institute of Energy Technologies - Fundamental Electrochemistry (IET-1), we perform research on highly relevant topics related to the energy transition. For example, we investigate the battery of the future and new battery concepts. How we can turn the greenhouse gas carbon dioxide (CO2) into the fuel of the future or how electrolysis can contribute to a hydrogen energy economy are other exciting projects. The aim is to develop sustainable and cost-effective batteries and fuel cells with improved energy and power density, longer lifetime, and maximal safety. Find out more about our mission and future-oriented projects here: https://www.fz-juelich.de/de/iet/iet-1

We are offering a

PhD Position – High-Temperature Electrolysis – from stack design to operational optimization

Your Job:
Help us shape the energy transition! As part of your doctoral studies, you will support the development of innovative stack designs, operating strategies and measurement methods for power-to-X systems using high-temperature electrolysis (SOEC). The developed methods will serve to optimise the operation of SOCs for hydrogen production both technically and economically and improve tolerance against impurities. In doing so, you will make a direct contribution to national and European climate targets. Your tasks in detail:

- Planning, implementation and evaluation of long-term and transient tests of stacks with solid oxide cells (SOC) in electrolysis mode
- Electrochemical characterisation of cells during stack operation using direct and alternating current-based techniques (e.g. characteristic curves/cyclovoltammetry, amperometry, electrochemical impedance spectroscopy)
- Experimental investigation of the material compatibility of interconnector steels, protective coatings and cell materials with adapted glass-ceramic joining materials,

We look forward to receiving your application until 15.02.2026 via our **Online-Recruitment-System!**
Questions about the vacancy?
Get in touch with us by using **our contact form.**
Please note that for technical reasons we cannot accept applications via email.
www.fz-juelich.de

with a focus on interactions during the joining process and under operating conditions
- Optimisation of experiments, measurement methods and measurement technology, including test facilities with regard to the research and project objectives
- Collaboration in the analysis of operated SOC stacks through disassembly and post-test characterisation to identify material interactions and damage mechanisms for linking with operating data
- Collaboration and networking with other departments at the research centre (cell development, stack construction, system and component development, microscopy, spectroscopy)
- Presentation of findings at specialist conferences, publication in leading journals and active exchange with industry and research partners

Your Profile:
- Completed master degree in chemistry, electrochemistry, technical chemistry, chemical engineering or a comparable field (e.g. engineering related to process engineering or chemistry)
- Good knowledge of electrochemistry, materials science and/or process engineering systems is an advantage
- Knowledge of relevant programming languages for data processing/evaluation, especially Python/ Matplotlib, is an advantage
- Independent, structured and responsible way of working, commitment, high degree of teamwork skills, and enjoyment of cooperative collaboration
- Interest in familiarizing yourself with new technologies and topics
- Good knowledge of German and English

Our Offer:
We work on the very latest issues that impact our society and are offering you the chance to actively help in shaping the change! We support you in your work with:
- TEAM & ENVIRONMENT: You will work in a motivated team with an international and interdisciplinary focus – at one of the largest research institutions in Europe
- RESEARCH & INFRASTRUCTURE: You will have access to excellent scientific and technical facilities for your work
- WORK-LIFE BALANCE: We offer flexible working hours to help you balance your professional and personal life. You also have the option of flexible working (in terms of location), which is generally possible after consultation and in line with upcoming tasks and (on-site) appointments
- VACATION: You will receive 30 days of vacation
- KNOWLEDGE & DEVELOPMENT: Your professional development is important to us – we support you specifically and individually e.g., through training and networking opportunities specifically for doctoral candidates (JuDocS): https://go.fzj.de/JuDocs
- SUCCESSFUL START: It is important to us that you quickly settle into the team and are given structured training for your tasks. We also support you from the very beginning and make your start easier with our Welcome Days and Welcome Guide: https://go.fzj.de/welcome
- FAIR REMUNERATION: Depending on your qualifications and assigned responsibilities, you will be classified according to pay group 13 (75%) of the TVöD-Bund. Additionally, you will receive a special payment (“Christmas bonus”) amounting to 60% of one month’s salary. Additional compensation beyond the base salary may be possible. All information about the TVöD-Bund collective agreement can be found on the BMI website (pay scale table on page 69 and following of the PDF download): https://go.fzj.de/bmi.tvoed

- FIXED-TERM: The position is limited to 3 years
- SUPPORT FOR INTERNATIONAL EMPLOYEES: Our International Advisory Service makes it easier for international employees to get started

In addition to exciting tasks and a collegial working environment, we offer you much more: https://go.fzj.de/benefits

We welcome applications from people with diverse backgrounds, e.g. in terms of age, gender, disability, sexual orientation / identity, and social, ethnic and religious origin. A diverse and inclusive working environment with equal opportunities in which everyone can realize their potential is important to us.

The following links provide further information on diversity and equal opportunities: https://go.fzj.de/equality and and on the targeted promotion of women: https://go.fzj.de/womens-job-journey