At the Institute of Energy and Climate Research - Fundamental Electrochemistry (IEK-9), we perform research on highly relevant topics related to the energy transition. For example, we investigate new battery concepts and how we can turn the greenhouse gas carbon dioxide (CO2) to the fuel of the future. The aim is to develop sustainable and cost-effective electrochemical systems with improved energy and power density, longer life time, and maximal safety. Find out more about our mission and future-oriented projects here: https://go.fzj.de/IEK-9

We are looking to recruit a

**Postdoc for Operando X-ray Spectroscopy (at the Fritz-Haber-Institute Berlin)**

**Your Job:**
You will investigate the degradation of solid oxide electrolysis cells under working conditions. High temperature solid oxide electrolysis cells are promising candidates for efficient chemical energy conversion. However, their lifetimes are limited by rapid deactivation. Understanding the electronic origin of their deactivation may lead to new design concepts for improved and prolonged performance. This position will offer the unique opportunity of combing different operando techniques for X-ray spectroscopy including ambient pressure X-ray photoelectron spectroscopy and X-ray absorption spectroscopy under reaction conditions and in the soft and tender X-ray range at the synchrotron radiation facility BESSY II. Experiments will be complemented by electron microscopy, including environmental scanning electron microscopy (ESEM) and transmission electron microscopy (TEM), with state-of-the-art aberration corrected high resolution TEM (Electron Microscopy Group). Furthermore, a close collaboration with the Theory department of the FHI and the RWTH Aachen has already been established. You will be working at the Fritz-Haber-Institute, Department of Inorganic Chemistry, Electronic Structure group in Berlin for the main part of your work.

We look forward to receiving your application until 08.06.2022 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
Your tasks in detail:

• You will perform operando X-ray spectroscopy (X-ray absorption and X-ray photoelectron spectroscopy in the soft and tender X-ray energy range) measurements on solid oxide electrolysis cells at the synchrotron radiation facility BESSY II in Berlin. The experiments will be performed at different beamlines at BESSY II, like ISIS, BELChem and CAT@EMIL. The dedicated endstations base on the PHOIBUS 150 NAP XPS electron analyzer. Different potentiostats will be used to run the electrochemical reaction in homemade electrochemical cells.

• The data analysis of the performed experiments is an important part of the job.

• Since the experiments are rather complex you will be working in a team with postdocs and PhD students.

• You will collaborate with the project partners in Jülich in order to discuss the properties/dimensions of new solid oxide electrolysis cells to be synthesized by them.

• The collaboration with the theory and the electron microscopy group in Berlin will be coordinated by you.

• You will publish your results in international journals and present your work on conferences.

Your Profile:

• Master’s and PhD degree in natural sciences (Physics, Chemistry, Material Science, Physical Chemistry), preferably with a specialization in heterogeneous catalysis or energy science

• Hands-on-experience in X-ray spectroscopy at synchrotron radiation facilities in the soft energy range and some experience in operando X-ray spectroscopy

• Pleasure and experience in manual tasks (e.g., assembly and construction of in situ cells)

• Proven ability to write publications

• Experience at performing and analyzing complex experiments with a high drive to solve scientific and practical/instrumental challenges independently

• Collaborative spirit, teamwork, and excellent English skills

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:

• Comprehensive training courses and individual opportunities for personal and professional further development

• Extensive company health management

• Ideal conditions for balancing work and private life, as well as a family-friendly corporate policy

• Flexible working hours in a full-time position with the option of slightly reduced working hours

• Flexible work (location) arrangements, e.g. working in home office

• 30 days of annual leave and provision for days off between public holidays and weekends (e.g. between Christmas and New Year)

• Exploration and preparation of next career opportunities supported by our Career Center & Postdoc Office (https://www.fz-juelich.de/careercenter)

• Targeted services for international employees, e.g. through our International Advisory Service

You will receive a contract with the IEK-9 at Forschungszentrum Jülich, but your place of employment will be the Fritz-Haber-Institute in Berlin.
We offer you an exciting and varied role in an international and interdisciplinary working environment. The position is for a fixed term of 2 years. Salary and social benefits in conformity with the provisions of the Collective Agreement for the Civil Service (TVöD).

Place of employment: Berlin

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.