



Research assistant/associate (f/m/d)

Real-time insight into heterogeneous catalysts for non-fossil energy supply via in-situ X-ray scattering (Fuel Science Center)

Lehrstuhl und Institut für Kristallographie

Job-ID: V000001580

Location: Aachen

Contract duration: Fixed-term employment

Job evaluation: EG 13 TV-L

Start date: 01.01.2022

Working hours: Part-time, 26,55h

Published: 05.11.2021

Application time: 01.12.2021

Job type: Academic staff

Our Profile

The Institute of Crystallography at RWTH Aachen University is placed in the interdisciplinary field of chemistry, physics, geo- and material sciences. Our research aims at a better understanding of the structure and dynamics of nanoscale solid-liquid and solid-gas interfaces, because of their importance in catalysts, energy materials, and nanomaterials. To achieve these goals, we employ modern X-ray and neutron scattering techniques, both in the laboratory and at large scale research facilities.

Project description. In the cluster of excellence "Fuel Science Center", the entire lifecycle of renewable fuels is investigated: from the fuel generation by molecular reaction processes, via model reactors and highly efficient propulsion systems to the design of entire fuel process and value chains. Heterogeneous catalysts, often nanoparticles on a support, are frequently employed for both the synthesis and combustion of bio-hybrid fuels. During catalysis morphological as well as atomic structural changes of the catalyst particles occur. In order to follow the intricate structural details during catalyst activation and cycling in real-time, we perform in-situ high energy X-ray scattering experiments at synchrotron radiation facilities. Such experiments will allow us to derive structure-activity correlations, for instance for Nickel-based perovskite-derived catalysts in the catalytic conversion of CO₂ in collaboration with the Palkovits group, or insight into perovskites in exhaust gas treatment with the Simon group (both RWTH Aachen University).

Applications must be submitted as 1 PDF file electronically in German or English and must include: letter motivating the application and background for this position, CV, Diploma and transcripts of records (BSc and MSc), possibly up to 2 contact information of references.

Your Profile

- University degree (Master or equivalent) in chemistry, physics, materials science, geoscience or related field.
- Experience in at least two of the following: heterogeneous catalysts, mass spectrometry, X-ray scattering, data analysis / scientific programming (Origin Pro, Igor Pro, Python).
- High motivation for further training, independent and goal-oriented way of working.
- Good communication skills in English and possibly German.
- You are also interested in further academic qualifications (doctorate).

Your Duties and Responsibilities

- Adaptation and extension of an existing flow cell setup for in-situ experiments, e.g. for various gas feeds, water / organic vapor inlets
- Preparation of samples for beamtimes including physicochemical characterization, e.g. TEM, MS

- X-ray diffraction experiments at laboratory diffractometers and synchrotron radiation facilities (national and international)
- Analysis of XRD and PDF (pair distribution function) data for structure refinement and modelling of heterogeneous catalysts
- Publication of results in peer-reviewed scientific journals and presentation at conferences.

What We Offer

The successful candidate will be employed under a regular employment contract.

The position is to be filled by 1/1/2022 and offered for a fixed term of three years.

The fixed-term employment is possible as it constitutes one of the fixed-term options of the Wissenschaftszeitvertragsgesetz (German Act on Fixed-term Scientific Contracts).

This is a part-time contract position.

The standard weekly hours will be 26,55 hours.

The successful candidate has the opportunity to pursue a doctoral degree in this position.

The salary is based on the German public service salary scale (TV-L).

The position corresponds to a pay grade of EG 13 TV-L.

About us

RWTH is a certified family-friendly University. We support our employees in maintaining a good work-life balance with a wide range of health, advising, and prevention services, for example university sports. We also offer a comprehensive continuing education scheme and a public transportation ticket available at a significantly reduced price.

RWTH is an equal opportunities employer. We therefore welcome and encourage applications from all suitably qualified candidates, particularly from groups that are underrepresented at the University. All qualified applicants will receive consideration for employment and will not be discriminated against on the basis of national or ethnic origin, sex, sexual orientation, gender identity, religion, disability or age. RWTH is strongly committed to encouraging women in their careers. Female applicants are given preference if they are equally suitable, competent, and professionally qualified, unless a fellow candidate is favored for a specific reason.

As RWTH is committed to equality of opportunity, we ask you not to include a photo in your application.

You can find information on the personal data we collect from applicants in accordance with Articles 13 and 14 of the European Union's General Data Protection Regulation (GDPR) at <http://www.rwth-aachen.de/dsgvo-information-bewerbung>.

Contact & Application

Contact regarding the application

Prof. Mirijam Zobel

Lehrstuhl und Institut für Kristallographie

Jägerstraße 17-19

52066 Aachen

Tel.: +49 241 80 96916

Email: zobel@ifk.rwth-aachen.de