



# Research Assistant/Associate (f/m/d)

## Solvation structures around non-magnetic metal oxide nanoparticles

Lehrstuhl und Institut für Kristallographie

**Job-ID:** V000001474

**Location:** Aachen

**Contract duration:** Fixed-term employment

**Job evaluation:** E 13 TV-L

**Start date:** as soon as possible

**Working hours:** Part-time, 26,55h

**Published:** 02.11.2021

**Application time:** 22.11.2021

**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 catalysis, for energy materials, and nanomaterials. To achieve these goals, we employ and develop modern X-ray and neutron scattering techniques, both in the laboratory and at large scale research facilities.

**Project description.** Interfaces between metal oxide nanoparticles and water play a crucial role in nanotechnology, geosciences, biomedicine, and catalysis. For nanostructured interfaces, our knowledge of interfacial physicochemical properties is still very limited, yet highly relevant to optimize applications. We have already established insight into the restructuring of water around magnetic iron oxide nanoparticles by means of X-ray and neutron scattering. Now, in this project, we aim to complement insight for non-magnetic metal oxide nanoparticles such as TiO<sub>2</sub> or ZnO. The restructuring of solvents around the nanoparticles shall be probed by means of pair distribution function (PDF) analysis of X-ray scattering data from synchrotron radiation facilities. This project will contribute to establish fundamental understanding of restructuring phenomena at nanoscale interfaces.

**Application.** Applications must include

- Letter motivating the application and background for this position
- CV
- Diploma and transcripts of records (BSc and MSc)
- Possibly contact information for up to 2 references.

Please submit your application in German or English as one PDF file electronically.

### Your Profile

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

## Your Duties and Responsibilities

- Synthesis of non-magnetic metal oxide nanoparticles with variable parameters such as ligand coverage, size or shape.
- Sample preparation for beamtimes involving additional characterization such as XRD, TGA or DLS.
- PDF experiments at synchrotron radiation facilities (national and international).
- Data analysis of X-ray scattering data, e.g. with Igor Pro, Origin.
- 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 at the earliest possible date and offered for a fixed term of 3 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 E 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

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