

The Chair of Analytical Chemistry II at Ruhr University Bochum is looking for a

## PHD CANDIDATE IN ELECTROCHEMISTRY

### Project description

We invite applications for a vacancy as research assistant (m/f/d) (PhD position, TV-L E13 25,89 hours per week, 3 years) in the field of **electrocatalysis**.

The research project about the electrochemical investigation of nano-catalyst transformations during electrochemical oxidation reactions is part of the collaborative research center/ transregio 247 “Heterogenous oxidation catalysis in the liquid phase” ([uni-due.de/sfbtrr247/](http://uni-due.de/sfbtrr247/)). The CRC 247 was set up in July 2018 and comprises 20 scientific projects in heterogenous and electro-catalysis, advanced materials characterization, synthesis, and computational chemistry.

In the respective project, changes of surface-near regions of the oxide nanoparticles during electrocatalytic reactions will be investigated (see also [doi.org/10.1021/acscatal.0c04118](https://doi.org/10.1021/acscatal.0c04118)) to understand ternary relations of morphological and structural properties of (pre-)catalysts, operating catalysts under electrochemical conditions and electrocatalytic activity.

There is the opportunity to attain a doctorate/PhD degree and, in this context, complete comprehensive research and career development programmes of the Graduate School UnOCat of the collaborative research center, the RUB Research School as well as individual modules/lectures of the Ruhr-Universities graduate study programmes.

### Your tasks

- Electrochemical activation and characterization of nanoscaled electrocatalytic materials for water splitting and alcohol oxidation (differential electrochemical mass spectrometry (DEMS), electrochemical impedance spectroscopy (EIS))
- Investigating sub-processes of the formation and functioning of the actually active catalyst form by spectroelectrochemical *operando* methods in collaboration with members of the collaborative research center
- Co-working on interdisciplinary research questions of the research group
- Regularly publishing and presenting research results in scientific journals and international conferences (in English)

### Your profil

The position provides various opportunities for research cooperation and requires:

- Knowledge in the field of (physical) electrochemistry and related topical areas. Practical research experience (*e. g.* due to Bachelor's or Master's thesis) is appreciated
- Knowledge/ experience in electrochemistry, nanoparticle characterization (*e. g.* scanning electron microscopy, X-ray diffraction and spectroscopic methods) and electrode preparation (appreciated)
- Advanced knowledge of tools for data analysis (*e. g.* Origin) and literature management software (*e. g.* endnote)
- Motivation, ability to work self-responsible as a member of a team, flexibility
- Professional working proficiency in English

Suitable candidates should be interested in interdisciplinary research with focus on electrochemistry in a highly motivated team and hold a Master of Science degree (or equivalent) in chemistry, physics, or materials science. Besides problem solving skills in combination with creativity and initiative, enthusiasm for fundamental scientific research is appreciated. Good knowledge of written and spoken English, a careful

working style in the laboratory and measurement activities as well as literature analysis, and good communication skills are a prerequisite for the position.

**We ...**

are a young research group working on shape-dependent electrochemistry in the context of energy storage and conversion. The team of Dr. Julia Linnemann is part of the Chair of Analytical Chemistry II (Prof. Dr. Kristina Tschulik) at the Faculty of Chemistry and Biochemistry. The Chair of Analytical Chemistry II has many years of experience in developing and applying electrochemical methods to research single nanoparticles and particle films. The highly modern laboratories of the chair are accordingly equipped for various electrochemical, spectroscopical, and microscopical techniques to characterize nanomaterials.

**Further information**

The Ruhr-Universität Bochum stands for diversity and equal opportunities. For this reason, we favour a working environment composed of heterogeneous teams, and seek to promote the careers of individuals who are underrepresented in our respective professional areas. The Ruhr-Universität Bochum expressly requests job applications from women. In areas in which they are underrepresented they will be given preference in the case of equivalent qualifications with male candidates. Applications from individuals with disabilities are most welcome.

If the position is funded by third-party funds the employee has no teaching obligation.

Travel expenses for interviews cannot be refunded.

[Job posting at the RUB website](#)

**Application**

We are looking forward to receiving your application with the specification ANR 807 until 31 August 2022. Your application should include your CV, certificates and a description of your research interests which should be send by email (as one merged pdf file) to [julia.linnemann@ruhr-uni-bochum.de](mailto:julia.linnemann@ruhr-uni-bochum.de).