

**Personalservice (PSE) (/)**

## **Research Associate - Postdoc (f/m/d)**

### **Operando X-ray Diffraction Tomography for Catalysis and Materials Research**

#### **Job description**

The “X-ray Microscopy in Catalysis” (XRM) group based at KIT strives to understand the structure and function of heterogeneous catalytic materials and processes - promoting efficient chemical synthesis, energy conversion technologies, and emissions control. To achieve this, we perform advanced X-ray imaging studies at synchrotron light sources - allowing deep structural analysis across multiple dimensions (2D/3D), hierarchical length scales (nm to mm) and under realistic reaction conditions (in situ/operando). This allows us to develop a holistic view of catalysts and functional materials in action.

We are currently seeking a motivated and proactive postdoctoral researcher to join our group in a new project in cooperation with the synchrotron light source PETRA III at DESY (Hamburg, Germany) which operates some of the most advanced X-ray imaging infrastructure in the world. As part of the XRM group,

and in collaboration with DESY, you will:

- develop and operate in situ / operando sample environments for high-energy X-ray diffraction tomography of catalysts and functional materials at work
- develop your expertise in complex data analysis problems across the field of catalysis and materials science, which is invaluable for pursuing a career in research or industry
- prepare research proposals, perform experiments at PETRA III and other synchrotron radiation sources worldwide together with the project partners
- assist in microscopy and data analysis tasks for the group, and with beamline operations at P07 (DESY endstation)
- NOTE: the main research tasks will take place at DESY, you will mostly be based in Hamburg, Germany during the project.

Essential to the project is willingness to contribute to synchrotron experiments within the project group and with external partners, engage with diverse research fields, and thrive in a multinational and interdisciplinary work environment. The project is led by Dr. Thomas Sheppard (KIT).

## Personal qualification

- You have completed a PhD with a focus on synchrotron radiation, particularly X-ray diffraction and/or tomographic imaging.
- You hold a Masters degree in chemistry, materials science or physics.
- Deep knowledge of X-ray diffraction/scattering methods is essential for this position.
- Programming skills (e.g. Python, C++, MATLAB) are a strong advantage, especially in the field of image processing.
- Previous (postdoctoral) experience at large scale research facilities and a background in heterogeneous catalysis are preferred.
- Fluency in written and spoken English (working language) is essential, knowledge of German is optional.
- In summary, the ideal candidate has a strong affinity for experimentation, enjoys complex data problems (particularly imaging data), and is keen to gain knowledge in an interdisciplinary work environment with a view to a

future leadership role in research.

## Salary

Salary category 13, depending on the fulfillment of professional and personal requirements.

## we offer

## Organizational unit

Institute for Chemical Technology and Polymer Chemistry (ITCP)

## Starting date

as soon as possible

## Contract duration

limited for 2,5 years

## Application up to

20.09.2022

## Contact person in line-management

For further information, please contact Dr. Thomas Sheppard, email: [thomas.sheppard@kit.edu](mailto:thomas.sheppard@kit.edu) (mailto:thomas.sheppard@kit.edu).

## Application

Please send your application including a cover letter, your CV, and all

certificates/references in electronic form to: [thomas.sheppard@kit.edu](mailto:thomas.sheppard@kit.edu)  
(<mailto:thomas.sheppard@kit.edu>).

Please refer to....

**vacancy number: 2203/2022**

We prefer to balance the number of female and male employees (f/m/d).  
Therefore, we kindly encourage female applicants to apply for this job.

Recognized severely disabled persons will be preferred if they are equally  
qualified.

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