



Conducting research for a changing society: This is what drives us at Forschungszentrum Jülich. As a member of the Helmholtz Association, we aim to tackle the grand societal challenges of our time and conduct research into the possibilities of a digitized society, a climate-friendly energy system, and a resource-efficient economy. Work together with around 6,800 employees in one of Europe's biggest research centres and help us to shape change!

The Ernst Ruska Centre for Microscopy and Spectroscopy with Electrons (ER-C) at Forschungszentrum Jülich is one of the world-leading electron microscopy centres with more than 15 electron microscopes. The Structural Biology division of the ER-C investigates the structural and molecular mechanism of membrane biology and pushes the development of cryo-EM related methodology. Our main methods of investigation are single-particle electron cryo-microscopy (cryo-EM) as well as electron cryo-tomography (cryo-ET) that we are also developing to advance existing imaging technologies towards high-resolution structural biology. The ER-C-3 uses a comprehensive electron microscopy approach to study the biological structures of membrane-associated protein complexes. In close cooperation with experts in the development of methodologies in multidimensional STEM, new approaches for low-dose imaging at high contrast in cryo-EM are explored both theoretically and experimentally. Find out more here: <https://go.fzj.de/erc3-ibi6>

We are looking to recruit a

## PhD Position: Method development of cryo-STEM imaging

### Your Job:

This PhD position is dedicated to the advancement of Cryo-EM imaging methods at the interface of Structural Biology and Electron Imaging. Cryo-EM has become a very powerful method to visualize ice-embedded samples including purified proteins at close to atomic resolution. Single-particle cryo-EM as well as cryo-ET are based on conventional transmission electron microscopy (TEM) exposures taken in underfocus. In this project, we aim to further develop the imaging capabilities based on scanning transmission electron microscopy (STEM) including differential phase contrast as well as ptychography in order to apply them to vitrified biological specimens.

Your tasks include:

- Develop novel methods for the application of STEM methods to biological specimens

We look forward to receiving your application until 18.11.2021 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](http://www.fz-juelich.de)

- Operate high-resolution electron microscopes with ice-embedded biological samples
- Perform image analysis to determine high-resolution cryo-EM structures of ice-embedded test specimens and in situ cellular samples
- Employ advanced imaging methods together with an interdisciplinary team of physicists and structural biologists

#### **Your Profile:**

- Master degree in biophysics, biochemistry, molecular or cell biology or related field
- Strong experimental skills in biophysics, molecular cell biology experiment design including associated data analysis
- Prior knowledge of structural biology and/or light/electron microscopy techniques is of great advantage
- Strong communication skills and ability to work in an international and interdisciplinary team

#### **Our Offer:**

We work on the very important issues that impact our society and are offering you the chance to actively help in shaping the change. We offer ideal conditions for you to complete your doctoral degree:

- The chance to work at one of the largest research centers in Germany, with excellent scientific equipment and leading European computational resources, located on a green campus, and near the cultural centers Köln, Düsseldorf and Aachen. The Jülich Campus also hosts a vibrant (bio)physics, bioinformatics and structural biology community.
- Direct access to high-level EM infrastructure at the Ernst-Ruska-Centre including cryo-microscopes. The facility has been extended with state-of-the-art cryo-microscopes and FIB-SEMs of ThermoFisher Titan Krios, Talos Arctica and Aquilos 2.
- Access to outstanding wet-lab and sample preparation laboratories at the host institute.
- Working in a dynamic team of researchers with backgrounds in different disciplines across biology, chemistry, physics and informatics to advance cryo-STEM methods.
- Further development of your personal strengths, e.g. through an extensive range of training courses; a structured program of continuing education and networking opportunities specifically for doctoral researchers via JuDocS, the Jülich Center for Doctoral Researchers and Supervisors: <https://www.fz-juelich.de/judocs>
- Targeted services for international employees, e.g. through our International Advisory Service

The employment of doctoral researchers at Jülich is governed by a doctoral contract, which usually has a term of three years. Pay is in line with 65% of pay group 13 of the Collective Agreement for the Public Service (TVöD-Bund) and additionally 60 % of a monthly salary as special payment („Christmas bonus“). Further information on doctoral degrees at Forschungszentrum Jülich including our other locations is available at: [www.fz-juelich.de/gp/Careers\\_Docs](http://www.fz-juelich.de/gp/Careers_Docs)

Forschungszentrum Jülich promotes equal opportunities and diversity in its employment relations.

We also welcome applications from disabled persons.