



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 7,500 employees in one of Europe's biggest research centres and help us to shape change!

The Ernst Ruska-Centre (ER-C) for microscopy and spectroscopy with electrons is a center of excellence in advanced transmission electron microscopy (TEM) and spectroscopy for addressing topical problems in materials science, solid-state physics and chemistry, biology and soft matter. It comprises three divisions which each have a different focus.

At ER-C-1 (Physics of Nanoscale Systems) we carry out systematic characterizations using various complementary techniques, including the latest TEM based techniques, such as electron holography, HR-(S)TEM, high energy resolution spectroscopy, 4D-STEM, and ptychography. This enables the measurement of, e.g., electrical potentials and magnetic fields, polarization fields, built-in potentials, strain, and carrier dynamics on nanometer scales with high temporal resolution.

**Join our team to the next possible date as**

## Master Thesis - Study of Remote Epitaxy Methods for Applications in TEM

### Your Job:

This master's thesis aims to produce freestanding  $\text{SrTiO}_3$  films with a thickness of less than 100 nm using various established remote epitaxy methods. The efficiency of these methods will be evaluated by characterizing the film's microstructure at atomic resolution using advanced transmission electron microscopy (TEM) techniques. The experiments will be conducted at ER-C-1 and the cleanroom of HNF FZJ, in collaboration with PGI-7 and PGI-9 FZJ. These freestanding  $\text{SrTiO}_3$  films will serve as electron-beam-transparent membranes (patent pending), designed to be technologically compatible with the epitaxial growth of high-quality superconducting and ferromagnetic oxide films.

Key objectives:

- Fabrication of electron-transparent freestanding  $\text{SrTiO}_3$  films

The job will be advertised until the position has been successfully filled. You should therefore submit your application as soon as possible. We look forward to receiving your application 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)

- Atomic-scale characterization of their microstructure using TEM
- Growth and analysis of epitaxial superconducting and ferromagnetic oxide films on the freestanding SrTiO<sub>3</sub> membranes

**Your Profile:**

- You are studying physics, material sciences, engineering, or a related subject at a university and are looking for a topic for a master's thesis.
- You are interested in and ideally also have previous knowledge in the fields of electron microscopy and solid state physics.
- You can work independently and responsibly, show commitment, a high level of teamwork, and enjoyment of cooperative collaboration.
- Furthermore, you can quickly familiarize yourself with new methods and techniques.
- You are fluent in written and spoken English.

**Our Offer:**

We work on highly relevant, innovative topics and offer you the opportunity to actively shape change!

We offer you:

- An interesting and socially relevant topic for your thesis with a future-oriented topic
- Ideal conditions for practical experience alongside your studies
- Interdisciplinary collaboration on projects in an international, committed and collegial team
- Excellent scientific equipment and the latest technology
- Qualified supervision by scientific colleagues
- Independent preparation and implementation of the assigned tasks
- A large research campus in the countryside, which offers the best opportunities for networking with colleagues and for sporting activities alongside work
- Flexible working hours and appropriate remuneration
- The opportunity to work flexibly (in terms of location), e.g. partly from home

In addition to exciting tasks and a collegial working environment, we offer you much more: <https://go.fzj.de/benefits>

We welcome applications from people with diverse backgrounds, e.g. in terms of age, gender, disability, sexual orientation / identity, and social, ethnic and religious origin. A diverse and inclusive working environment with equal opportunities in which everyone can realize their potential is important to us.

Further information on diversity and equal opportunities: <https://go.fzj.de/equality>