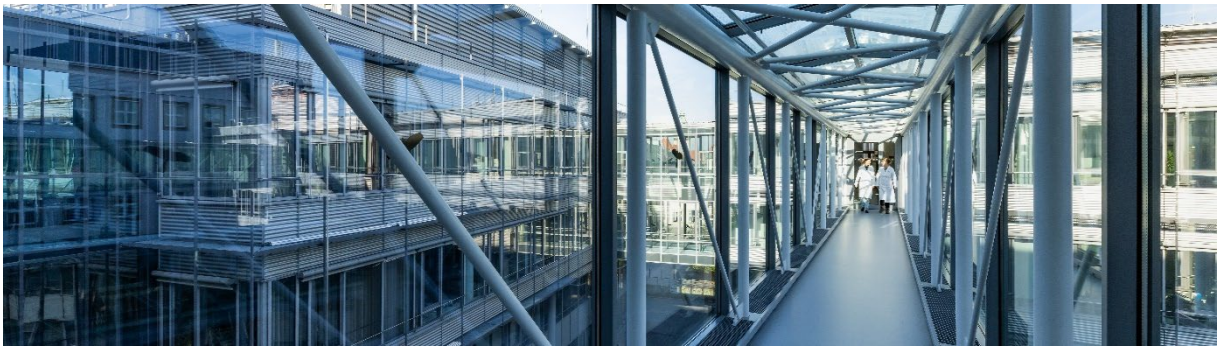
Leibniz Institute for Solid State and Materials Research Dresden

The Leibniz Institute for Solid State and Materials Research Dresden e. V. (IFW Dresden) conducts modern materials research on a scientific basis for the development of new and sustainable materials and technologies. The institute employs an average of 500 people from over 40 nations and, in addition to its scientific tasks, is dedicated to promoting young scientists and engineers. Further information at: http://www.ifw-dresden.de.



The Institute of Metallic Materials at the Leibniz Institute for Solid State and Materials Research Dresden (IFW Dresden) offers a

PhD-student-Position (m/f/div)

on the topic "Multilayered 2D cuprate artificial heterostructures"

Project Overview:

As theoretical proposals for realizing more complex devices using superconducting cuprate twisted architectures exhibiting novel twist symmetries, and quantum bits are booming, the challenge remains in improving our degree of control to experimentally realize these intriguing functionalities. The goal of this project is to bring state-of-the art fabrication technologies of our group together and explore the fundamentals of these more chemically complex van der Waals materials, discovering the functionalities for specifically the multilayered twisted cuprate architectures. The student will work in Dresden at the fabrication facilities of the Superpuddles lab creating synergy with the measurement expertise in superconducting quantum circuits of the QTLab at the University of Naples Federico II. The student will advance the experimental control of three-layers van der Waals heterostructure with innovative design and tackling key experimental challenges for novel superconducting quantum technologies (see Figure) by both exploring the realm of quantum transport and non-linear photonics at low-temperatures.

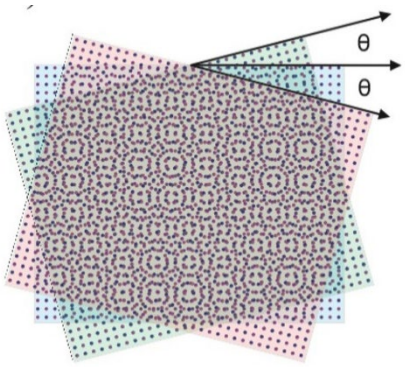


Figure: A sketch of 3-layers twisted cuprate heterostructures creating an unprecedented electronic complexity.

Your profile:
We are looking for a highly motivated and team-oriented student (m/f/div), who holds a Master degree in physics, engineering or quantum science and technology. Successful candidate (m/f/div) is enthusiast about fundamental science, highly ambitious and a good team-player. Good communication skills in written and spoken English are required.

What we offer:
- employment in accordance with the collective agreement for the public service of the federal states (TV-L),
- A modern, well-equipped workplace on the campus of the Technische Universität Dresden,
- Flexible, family-friendly working hours,
- 30 days vacation,
- Company pension scheme (VBL),
- Benefits for job ticket/Germany ticket,
- Special annual payment,
- Capital-forming benefits,
- Company health management (back training, health day with various offers),
- discounted sports offers from the Dresden University Sports Center,
- job-related further training opportunities and language courses,
- Company restaurant with a variety of breakfast and lunch dishes.

The salary is based upon the TV-L rules (EG 13, 65%). The initial appointment is for one year. The contract will be extended by another 2 years upon a successful mid-term evaluation. The anticipated start date is January-February 2026.

In line with our commitment to diversity, we encourage qualified women to apply, as we aim to increase female representation in the field of science. Additionally, disabled applicants (m/f/div) will receive preferential consideration if they meet the requisite qualifications. Promising candidates (m/f/div) will be invited for an interview.

Please send your application with informative documents (letter of motivation, CV, Master certificate, training certificates) exclusively in electronic form and in a PDF file (other formats will not be considered), citing the reference number **004-26-2107**, no later than **December 31 2025** to

bewerbung@ifw-dresden.de

If you have further questions about the position please contact Dr. Nicola Poccia (n.poccia@ifw-dresden.de) and/or Dr. Golam Haider (g.haider@ifw-dresden.de)