

## Job offer for a student assistant - digital lab book / connection of sample fabrication to SampleDB

The Salinga group at the Institute of Materials Physics is researching novel materials for neuromorphic computers. In particular, phase change materials (PCMs) potentially play an important role for novel computing chips, for example to reduce drastically the energy consumption of artificial intelligence computations. PCMs can be switched between the crystalline and amorphous state within nanoseconds, both electrically and optically. During switching, the electrical resistance changes over several orders of magnitude.

We have a state-of-the-art fabrication laboratory at CeNTech, consisting of an ultra-high vacuum (UHV) facility with a molecular beam epitaxy (MBE) system including a scanning tunnelling microscope (STM), in which films of phase change materials a few nanometres thick can be fabricated with near atomic precision. We can pattern the films using an ultra-clean thermal scanning probe lithography. The lithography takes place in gloveboxes in which the atomic sphere is free of dust, water and oxygen.

The data that accumulates during fabrication must be stored and processed digitally in a sustainable and secure manner. Therefore, the digital management of research data is very important for later evaluation and offers enormous advantages compared to a classic lab book. In this project, the entire history of the sample from the substrate to the final characterised film is to be digitally processed in a database. Specifically, the data from the UHV system will be transferred to our SampleDB setup.

Therefore, AG Salinga is looking for highly motivated and committed students to set up the research data management in our fabrication lab as soon as possible. We offer one position as a

### **Student assistant (10h/week).**

We expect

- Interest in fabrication of PCMs (UHV, MBE, STM, XPS) and solid state physics
- Interest in programming and software development (e.g. with Python)
- Interest in research data management and databases
- Personal initiative and high motivation

Your advantages:

- Acquisition of skills in important areas such as data science, modern programming (Python) and nano-fabrication
- Acquisition of knowledge for later (final) work within and outside physics
- Support from experienced staff from the working group
- Collaboration in a young, dynamic team

**Have we attracted your interest?**

**Then please contact Prof. Salinga ([martin.salinga@uni-muenster.de](mailto:martin.salinga@uni-muenster.de)).**