

Ph.D. Position:

Strongly Correlated Epitaxial Niobate Oxynitride Thin Films for a New Type of Photovoltaics

We are looking for an excellent and highly motivated person for a PhD position at the Georg-August-University Göttingen – Department of Physics, within the Institute of Materials Physics, in a joint project of **Prof. Jasnamol Palakkal** and **Prof. Christian Jooss**. The position can be started **as soon as possible** and is limited for 3 years. The salary group is E13 TV-L 75 %.

Topic: This project aims to develop tunable oxide/oxynitride perovskite thin films for photovoltaic applications. The tuning from ferroelectric to transparent conducting properties allow to elucidate new photovoltaic mechanisms, including charge separation by ferroelectric polarization to charge-selective contacts. The primary goal is to use the strategic approach of using electronic correlations to modify these properties in order to establish a coexistence of ferroelectric order and metal-like conductivity.

Your tasks and duties:

- You will grow epitaxial thin films of a transparent conducting perovskite oxide and its oxynitrides on various perovskite oxide substrates using a hybrid molecular beam epitaxy-pulsed laser deposition (MBE-PLD) technique.
- Careful study of the structure of this film by XRD, XPS, and TEM (collaboration with Prof. M Seibt / Dr. T. Meyer, University of Göttingen) and analysis of the electric transport and optical conductivity will allow us to establish a comprehensive structure-property relationship of this new highly promising material class.
- Furthermore, the photovoltaic effect of niobite single junctions and its performance in a tandem cell will be investigated by systematic spectrally resolved and temperature-dependent photovoltaic measurements.
- Active collaboration with other partners from various research institutes in Lower Saxony is expected.

Your profile:

- Recently obtained Master's degree in physics or materials sciences
- Communication skills in English are required. Good German language skills are desirable
- You are a team worker and self-motivated to attain project goals

Hands-on experiences in at least a few of the following techniques:

- Thin film growth by physical vapor deposition techniques
- Structural characterization of materials by XRD, XPS, AFM, SEM, etc.
- Electric transport, optical, and photovoltaic characterization

The University of Göttingen is an equal opportunities employer and places particular emphasis on fostering career opportunities for women. Qualified women are, therefore, strongly encouraged to apply in fields in which they are underrepresented. The university has committed itself to being a family-friendly institution and supports its employees in balancing work and family life. The mission of the University is to employ a greater number of severely disabled persons. Applications from severely disabled persons with equivalent qualifications will be given preference. **Please send your application (motivation letter + CV + Master /Bachelor certificates) as a single PDF file** via email to sekretariat@ump.gwdg.de – by **June 14th 2026**. Use 'Correlated Niobate' as the subject line in your email.

Please note: With the submission of your application, you accept the processing of your application data in terms of data protection law. Further information on the legal basis and data usage is provided in the Information General Data Protection Regulation (GDPR).